Justified Indulgence

The effects of self-licensing on self-regulation over time

Sosja Prinsen

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ISBN:
978-94-028-1339-5

Cover design:
Micha Prinsen & Yara Veloso

Design/lay-out:
Matthijs Ariens, persoonlijkproefschrift.nl

Print:
Ipskamp Printing, proefschriften.net

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Gerechtvaardigd zondigen:

De effecten van zelfrechtvaardiging op langdurige zelfregulatie (met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Utrecht
op gezag van de rector magnificus, prof.dr. H.R.B.M. Kummeling,
ingevolge het besluit van het college voor promoties in het openbaar te verdedigen
op vrijdag 22 februari 2019 des ochtends te 10.30 uur

door

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geboren op 30 juni 1986 te Utrecht

Promotor: Prof. dr. D.T.D. De Ridder
Copromotor: Dr. C. Evers

The research reported in this dissertation was partly funded by a Research Talent grant (#406-13-010) awarded by the Netherlands Organization for Scientific Research (NWO).

Voor Boaz

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General introduction

Acknowledgement of author contributions: SP is the sole author of this chapter. Parts of this chapter have been published in an amended form in Adriaanse, M. A., & Prinsen, S. (2018). Justification as antecedent and consequence of self-control failure. In D. T. D. De Ridder, M. A. Adriaanse, & K. Fujita (Eds.), *The routledge international handbook of self-control in health and well-being* (pp. 206-218). New York: Routledge.

Imagine a dieter contemplating whether to have a delicious pizza or a less appetitive but healthy salad for lunch. One way in which people deal with such conflicts between immediate gratification (e.g., tasty foods) and long-term goals (e.g., losing weight) is by employing excuses that justify giving in to the tempting yet ill-advised option. That is, reasons like 'I worked so hard, I deserve it', 'I can have pizza now if I go to the gym later', or 'I feel sad, I need something to cheer me up' are used to allow oneself to temporarily deviate from a higher-priority goal. In the literature this is referred to as *self-licensing*, defined as "the act of making excuses for one's discrepant behavior before actual enactment, such that the prospective failure is made acceptable for oneself" (De Witt Huberts, Evers, & De Ridder, 2014a, p. 121). Self-licensing thereby provides a compelling account for why people sometimes fail to act in line with their long-term goals and give in to temptation, generally known as self-regulation failure (Baumeister & Heatherton, 1996). Accordingly, a growing body of empirical research demonstrates that people employ excuses (i.e., justifications) to deliberately violate a long-term goal (e.g., De Witt Huberts, Evers, & De Ridder, 2014b; Taylor, Webb & Sheeran, 2013; Wilcox, Kramer, & Sen, 2011).

Although it has been established that self-licensing leads to initial self-regulation failure, there is not much insight in how self-licensing subsequently affects further goal striving. Does a dieter return to eating healthily after having a "well-deserved" pizza for lunch, or is this indulgent moment followed by even more unhealthy food choices? Considering that temptations essentially are "forbidden pleasures" (e.g., Trope & Fishbach, 2000; Hofmann, Kotabe, & Luhmann, 2013), acting on temptations is usually accompanied by negative feelings like guilt (Connoly & Zeelenberg, 2002; Xu & Schwarz, 2009; Giner-Sorolla, 2001), that in turn can promote further goal derailment ('Now that I failed my diet, I might as well let go completely'; Polivy & Herman, 1985; Muraven, Collins, Morsheimer, Shiffman, & Paty, 2005). However, a core characteristic of self-licensing is that it makes an upcoming failure acceptable, and is thereby likely to reduce the transgressor's blameworthiness (see Pizarro, Uhlman, & Salovey, 2003; Xu & Schwarz, 2009). As a consequence, the detrimental effects for further goal striving that typically accompany failure might be prevented. Hence, when it comes to successful goal striving, justified indulgence may be preferred over spontaneously acting on temptation without a reason for doing so. Also, besides merely serving the purpose of permitting self-gratification in response to opportunities to indulge, self-licensing may be strategically applied as well. For example, a dieter might reward herself with a pizza for lunch knowing that she needs this to be able to adhere to her diet for the rest of the day. Taken together, there may be ways in which self-licensing supports goal striving after initial failure, that only become apparent when the aftermath of licensed indulgence is studied. Therefore, the objective of the current dissertation is to examine whether self-licensing has potential

beneficial effects for self-regulation over time. This not only entails looking beyond the immediate effects of self-licensing and focusing on what happens after a moment of (un) justified self-regulation failure (i.e., goal-reengagement or further abandonment), but also includes exploring whether distinctive types of self-licensing (i.e., opportunity induced vs. strategically implemented) exist that either support or harm successful self-regulation in the long run.

Before further elaborating on the importance of looking at the effects of self-licensing on self-regulation over time, it will be explained how self-licensing complements the prevailing perspective of self-regulation failure being caused by uncontrollable impulses. Then, a brief history of self-licensing research will be provided by discussing evidence from the moral, consumer, and health domain showing that people may deliberately engage in behaviors that violate long-term goals when the context justifies doing so. Lastly, the specific research aims of the present dissertation will be presented, followed by an outline of the chapters in which these aims are addressed.

Self-licensing: An alternative perspective on self-regulation failure

A dominant theoretical framework for explaining self-regulation failure are dual process theories (i.e., Strack & Deutsch, 2004; Smith & DeCoster, 2000; for an overview see Evans, 2008). These theories have in common that they posit behavior as being guided by two separate cognitive systems: a fast, emotional "impulsive" system, and a rational, slow "reflective" system. An important distinction is that the reflective system is responsible for effortful decision making (e.g., rejecting temptations), whereas the impulsive system operates in an automatic fashion (e.g., reflexively responding to an opportunity to indulge). Some dual process theories take a parallel-competitive perspective and propose that the two systems have distinct information processing styles and compete for control over behavior, without the assumption that one leads to better outcomes than the other. Other dual process models endorse a so-called default-interventionist perspective, that posit the "reflective" system as being superior to the "impulsive" system, so that impulses dominate behavior unless reasoning intervenes (Evans, 2008). Accordingly, when there is no capacity for effortful processing, for example when one is tired or distracted, the impulsive system takes precedence over the reflective system. This default-interventionist perspective has dominated self-regulation literature, and thereby fostered the interpretation that the impulsive system is mainly responsible for self-regulation failure whereas the reflective system produces behaviors that are in line with long-term goals (e.g., Hagger, Wood,

Stiff, & Chatzisarantis, 2010; Hofmann, Friese & Wiers, 2008). This means that failure can stem either from an overactive impulsive system or a deficient reflective system. In other words, feeling hungry or smelling a freshly baked pizza triggers our impulses to indulge, which can only be tempered if our capacity to reason and reflect on our actions functions properly.

However, self-licensing provides an alternative perspective on self-regulation failure. It challenges the assumption that the impulsive system is mainly responsible for self-regulation failure by showing that long-term goals can be deliberately violated when the context justifies doing so (De Witt Huberts et al., 2014a). Actually, people may even actively seek for reasons that justify violations, especially when confronted with readily available temptations (Effron, Monin, & Miller, 2013; De Witt Huberts et al., 2014b). Self-licensing thereby demonstrates that our reasoning is not always rational and in line with our best interests, as it can be motivated by our desires and consequently leads us into temptation. Thus, in contrast with traditional models for self-regulation failure that assume that people may not always be *able* to act responsibly, self-licensing theory posits that people may not be *willing* to do so.

Evidence for self-licensing leading to self-regulation failure has been found in a range of behavioral domains, like moral (Mazar & Zhong, 2010; Monin & Miller, 2001), consumer (Khan & Dhar, 2006; Kivetz & Zheng, 2006), and health behavior (Weibel, Messner, & Brügger, 2014; Kronick & Knäuper, 2010). The present dissertation will examine self-licensing in the context of eating behavior. Not only is this a typical example of behavior that needs to be continuously regulated (i.e., deciding when, what, and how much to eat), it is also a behavior that is performed by everyone. Whereas cigarettes or alcohol can be abstained from completely, just as spending money on luxurious goods, one simply has to eat in order to live. At the same time, eating healthily can be quite challenging due to increasing availability and affordability of tempting but unhealthy foods that require effective handling of repeated opportunities to indulge (Lakerveld, Mackenbach, Rutter, & Brug, 2018). Indeed, people do not seem very effective in resisting the constant confrontation with these temptations, as reflected in the increasing prevalence of overweight and obesity (World Health Organization [WHO], 2018). When studying eating behavior, it is also important to realize that weight gain is not the result of eating one pizza, but rather a consequence of repeated indulgent choices. However, whereas self-licensing has been found to initially lead to self-regulation failure in terms of unhealthy food choices (Kivetz & Zheng, 2006; Khan & Dhar, 2007; Mukhopadyay & Johar, 2009, Wilcox et al., 2011; Salerno, Laran, & Janiszewski, 2015; Weibel et al., 2014) and increased unhealthy food intake (De Witt Huberts, Evers, & De Ridder, 2012; Taylor et al., 2013; Chang & Chiou, 2014), no insight yet exists into how it affects subsequent engagement in self-regulation. Such

insight is evidently needed in light of the current temptation-rich food environment that offers plenty opportunity for indulging repeatedly, thus making eating behavior a highly relevant topic for investigating self-licensing effects on self-regulation over time.

Self-licensing and initial self-regulation failure

Before being studied in the context of eating behavior, self-licensing was first introduced in the domain of moral behavior (Monin & Miller, 2001). It was proposed that people feel more free to act immorally after an initial moral act, like being more prone to cheat and steal after purchasing green (vs. conventional) products (Mazar & Zhong, 2010). Interestingly, even merely recalling or imagining a moral act was found to result in moral licensing effects. For example, people were found to be less willing to donate money after recalling a situation of helping other people (Jordan, Mullen, & Murnighan, 2010) or imagining supporting a foreign student (Khan & Dhar, 2006). Overall, a meta-analysis of 91 moral licensing studies established an estimated effect size of $d = .31$, suggesting a small-to-medium moral licensing effect (Blanken, Van de Ven, Zeelenberg, 2015). Altogether, these findings support the proposition that within the moral domain people who behave in a good (moral) way later feel licensed to engage in undesirable (immoral) behavior (Monin & Miller, 2001). However, a more in-depth analysis of the moral licensing effect found in the previously mentioned meta-analysis revealed a publication bias, and after correcting for this the evidential value of the effect appeared to be negligible (Blanken, 2015). In addition, failed attempts to replicate a previously established moral licensing effect (i.e., writing about one's positive traits leads to lower donations to charity and decreased cooperative behavior; Sachdeva, Iliev, & Medin, 2009) have been reported as well (Blanken, Van de Ven, Zeelenberg, & Meijers, 2014). A potential explanation for these inconsistent findings is that the original moral licensing framework posits that moral behavior *always* makes immoral behavior more likely. However, this should only be the case when this bad behavior is tempting to some extent, meaning that acting "right" or moral is in conflict with the desire to act "wrong" or immoral. After all, without such conflict, there is no need for a prior good deed because there is no behavioral desire that requires justification. Accordingly, it was recommended to acknowledge the role of the temptingness of the immoral behavior within licensing theory (Blanken, 2015).

Such a more encompassing and precise conceptualization of self-licensing was provided by De Witt Huberts et al. (2014a), who defined self-licensing as "the act of making excuses for one's discrepant behavior before actual enactment, such that the prospective failure is made acceptable for oneself" (p. 121). In contrast with moral licensing, this

definition explicitly states that self-licensing is triggered by a self-regulation dilemma: a decision between a tempting and immediately gratifying option (e.g., spending money on luxury goods) and an option with direct costs but long-term benefits (e.g., saving money for retirement). This dilemma prompts the need to find an excuse or reason that justifies going for the indulgent rather than prudent choice. Thus, self-licensing is not only about being more likely to give in to temptation in response to feelings of deservingness after having behaved responsibly, but also encompasses active engagement in using and searching for available justifications. This redefined conception of self-licensing is nicely illustrated in a study by Effron et al. (2013). In this study, participants were asked to provide a consumer product evaluation (cover-story), consisting of several tasting and rating sessions of different types of snacks. First, they were asked to choose a set of unhealthy snacks to taste in the second tasting session. After choosing one of two sets, participants in the experimental condition were steered towards choosing an unhealthy snack for the first tasting session: participants could choose between either eating two gloves of raw garlic, or four freshly baked cookies (indeed, 91% of participants chose the latter option). Importantly, in a pilot showed that participants would anticipate feeling guilty if they decided to choose the cookies. In the control condition, participants were told they only needed to examine, but not eat, both the garlic and cookies (hence, no choice was to be made). Then, all participants rated the healthiness of both sets of snacks for the second tasting session they had chosen earlier. The unchosen snacks were rated as unhealthier than the chosen snacks in the experimental condition, but received equal ratings in the control condition. For the chosen snacks, no difference was observed between conditions. This suggests that participants who were tempted to choose an unhealthy snack "strategically evaluated" the snacks that they declined to eat just before as more unhealthy, compared to participants who were not tempted. Thus, only when facing a self-regulation dilemma (as evidenced by the anticipated guilt that was reported in the experimental condition), participants showed a need to exaggerate the unhealthiness of foregone snacks, as a means to justify a subsequent indulgent choice.

Further evidence for this redefinition of self-licensing was derived from studies in the consumer and health behavior domain. In consumer research participants are usually provided with vice-virtue dilemmas, where vices are described as necessities or utilities that fulfil a basic need (e.g., vacuum cleaner) and virtues being more hedonic and essentially unnecessary luxury items (e.g., expensive perfume; Wertenbroch, 1998; Khan & Dhar, 2006). Deciding whether to opt for an indulgent rather than utilitarian product typically creates a conflict between functional (long-term) and hedonic (short-term) considerations, making such choices susceptible to available justifications. Accordingly, a number of studies established self-licensing effects by showing that participants were

more inclined to choose a vice over virtue when they just committed to a charitable act (e.g., Khan & Dhar, 2006), believed they exerted high effort on a task (Kivetz & Zheng, 2006), or refrained from buying an indulgent product (Mukhopadhyay & Johar, 2009). Besides typical luxury and utilitarian products like tabloid magazines and batteries (Kivetz & Zheng, 2006), unhealthy and healthy food products have also been used to exemplify vices and virtues. Hence, in both consumer and health behavior research food choices have been addressed to demonstrate self-licensing effects. These studies have shown for example that participants were more likely to choose an unhealthy (e.g., chocolate bar) over a healthy snack (e.g., apple) when they recalled an altruistic act (Weibel et al., 2014); recalled a personal achievement (Wilcox et al., 2011); or believed that they made sufficient progress towards their weight loss goal (Fishbach & Dhar, 2005). In the latter study, the perceived discrepancy between participants' current weight and goal weight was manipulated to look either small or large. Participants were asked to report their current weight in a textbox in the center of a scale that had either -5 kg and +5kg or -20 kg and +20 as its endpoints. Then they indicated their goal weight, by coloring the arrow that extended outward to the left (to endpoint -5 or -20 kg) to the point that represented their goal weight. On the narrow (-5 kg) scale, a goal weight of 3 kg less than one's current weight would mean coloring 60% of the scale. In contrast, on the wide (-20 kg) scale, wanting to lose 3 kg would result in coloring only 15% of the scale. Hence, the visual discrepancy between one's current and goal weight would appear smaller on the wide scale compared to the narrow scale. It was expected that a small perceived discrepancy would induce a sense of being closer to one's goal weight compared to a large perceived discrepancy. The results showed that 85% of participants in the wide scale condition subsequently chose a chocolate bar over an apple, compared to 58% of participants in the narrow scale condition. This suggests that a small goal discrepancy licensed participants to choose an unhealthy rather than healthy snack, as it signaled sufficient progress towards the goal of losing weight.

In addition to unhealthy food *choices*, increases in unhealthy food *intake* have also been observed to result from justification processes. These studies have the advantage that they measure behavior that is actually performed, as opposed to moral and consumer choice studies where the outcome measures are often restricted to hypothetical decisions (e.g., see meta-analysis Blanken et al., 2015; Khan & Dhar, 2006). Despite this advantage, relatively few self-licensing studies have addressed food intake, especially compared to the number of studies addressing food choices. One exemplary study of self-licensing affecting food intake comes from De Witt Huberts et al. (2012), where participants who were lead to believe that they invested more effort on a task (effort condition) subsequently ate more unhealthy snacks in a "taste-test" than participants in the control condition. In

this study, all participants performed the same task of typing the first letter of each word that appeared on a computer screen. Participants in the control condition did this for 10 consecutive minutes, whereas participants in the effort condition were told after the first 5 minutes that the task was finished, but that they were randomly selected to do the task again (in reality, all participants in the effort condition did the task twice and hence for a total of 10 minutes). So although actual effort was kept constant, perceived effort differed between conditions.

In another study by Taylor et al. (2013), female students were primed to justify indulgence. They were told to imagine themselves in a situation where they decide to go on holiday with friends rather than with their respective boyfriends, and to write down as many reasons as they could think of to justify this decision (i.e., 'I'll make it up to my boyfriend'). In the control condition, participants were asked to write down possible destinations for a holiday with friends. Afterwards, it was found that participants who previously generated reasons ate more of an unhealthy snack than participants who did not receive this justification prime. Importantly, this effect was only observed for participants who reported strong intentions to decrease their unhealthy snack intake. This finding suggests that, paradoxically, individuals with the strongest intentions are also the ones who are most susceptible to justify indulgence.

Taken together, these studies aptly illustrate that there is a wide variety of justifications, but also that self-licensing effects are not domain specific (see also Miller & Effron, 2010). That is, behaving morally, like being altruistic, does not only license subsequent immoral behavior (Jordan et al., 2010), but unhealthy food choices as well (Weibel et al., 2014). Studies in the domain of consumer behavior have found similar cross-domain effects, by demonstrating that participants were more likely to choose luxury over necessity goods when they just committed to a charitable act (e.g., Khan & Dhar, 2006). Accordingly, it has been proposed that "when people find themselves in a situation where they are tempted by something they know they really should not do, they might be successful in constraining themselves, unless they find a reason, any reason, to give in" (De Witt Huberts et al., 2014a, p. 122). Hence, as long as the reason seems valid to the person using it, it can be used to justify goal-violating behavior.

Self-licensing and self-regulation over time

Self-licensing research so far has mainly focused on immediate and single outcomes. That is, indulgent behavior is usually assessed directly after participants have been experimentally manipulated to self-license, and often only once. As a result, little is

known about how self-licensing influences subsequent decision making, i.e., the sequence of (indulgent) choices that we make over longer periods of time. However, people generally encounter multiple self-regulation dilemma throughout the day (Hofmann, Baumeister, Förster, & Vohs, 2012). When it comes to eating behavior, it is obvious that a healthy diet is not a matter of merely having a healthy breakfast, but also includes healthy lunch and dinner choices. The recurrence of dilemmas applies to other behaviors as well: just imagine making a shopping trip to the mall or dealing with the constant lure of social media throughout the workday. This emphasizes the need for looking beyond single outcomes and look at behavioral patterns instead. After all, it is crucial to realize that one indulgent choice usually does not seriously harm the attainment of a long-term goal, whereas repeated indulgent choices over time do. Spending five minutes on social media does not necessarily interfere with your work performance, but it likely does when all these short moments add up to several hours. Hence, a lack of insight in how self-licensing affects repeated decision making renders the conclusion that self-licensing leads to self-regulation failure, in terms of failing to achieve a long-term goal, premature – particularly as there may be a positive side to self-licensing in the long run that is currently overlooked.

Theoretically, a licensed goal violation can be followed by goal re-engagement due to the conflict resolving qualities of self-licensing. As mentioned earlier, a core characteristic of self-licensing is that it makes an upcoming failure acceptable (De Witt Huberts et al., 2014a). That is, by employing justifications the perception that a temptation seriously threatens long-term goal attainment is attenuated. As a result, the self-regulatory conflict between acting on a current desire (e.g., eating pizza) and behaving responsibly for long-term gains (e.g., staying slim) is not only resolved in favor of the tempting option, but also in a satisfactory manner. Hence, failure becomes acceptable and negative feelings like guilt that normally accompany goal violations (Connoly & Zeelenberg, 2002; Xu & Schwarz, 2009; Giner-Sorolla, 2001) are diminished. This in turn may prevent the maladaptive response to self-regulation failure where one little slip turns into complete abandonment ('I failed anyway, so there is no point in further restricting myself'), which in the literature has been documented as the "what the hell effect" (Polivy & Herman, 1985; see also Muraven et al., 2005) or the Abstinence Violation Effect (AVE; Marlatt & Gordon, 1980). Thus, by employing justifications the problematic response where initial failure is met with even more irresponsible behavior might be prevented.

At the same time, the conflict resolving qualities of self-licensing and the resulting lower levels of negative feelings could just as well promote further abandonment after a licensed goal violation. Namely, instead of stimulating the escalation of goal derailment, negative feelings can also elicit a need to compensate for the transgression (Rabiau, Knäuper, & Miquelon, 2006; Ramanathan & Williams, 2007; Baumeister & Heatherton, 1996;

Levav & McGraw 2009; Gilovich & Medvec, 1994; Tsiros & Mittal, 2000; Dhar & Simonson, 1999). For example, the guilt from having eaten a high-calorie pizza for lunch can motivate a light dinner choice to make up for the surplus of calories. From this viewpoint self-licensing would be undesirable because it takes away the adverse consequences that can prompt compensatory behavior after initial failure. Taken together, it seems that no clear predictions can be made about how licensed goal violations affect further goal striving. Because reliance on self-licensing might go either way, the present dissertation will explore whether a prior licensed goal violation either impairs or promotes subsequent attempts at self-regulation.

Besides predictions based on the affective consequences of licensed goal violations, the subsequent handling of temptations may also be determined by how these licensed violations are incorporated into perceptions of one's self-regulatory ability. Normally, indicators of perceived self-regulatory ability like self-efficacy, motivation, and goal importance (Nguyen & Polivy, 2014) are negatively affected by goal violations (e.g., Carels et al., 2001; Carels, Douglass, Cacciapaglia, & O'Brien, 2004; McKee, Ntoumanis, & Taylor, 2014; Polivy & Herman, 1985). However, because feelings of failure are attenuated through self-licensing, perceptions of self-regulatory ability should remain relatively intact despite having given in to temptation. To illustrate, a dieter who has pizza for lunch is more likely to feel in control over her eating behavior when she can attribute this choice to special circumstances ('I just received a promotion, I deserve it') rather than personal weakness ('I have no willpower'). Importantly, these preserved feelings of self-regulatory capacity should in turn support self-regulatory success (Nguyen & Polivy, 2014). Therefore, the present dissertation will give specific attention to perceived self-regulatory ability when studying self-licensing effects in repeated decision making.

Considering the indications that self-licensing can be beneficial for successful regulation in the long run, it is an interesting question whether self-licensing can be applied as a self-regulatory strategy. Specifically, allowing oneself the occasional goal violation — by means of self-licensing — may turn out to be a better strategy than aiming for complete control over one's behavior. Considering the vast literature on self-regulation failure, it seems reasonable to suggest that it is impossible for people to always control their behavior. Also, people usually have multiple goals, which inevitably requires some degree of failure in pursuing one goal in order to preserve the attainment of another goal. Hence, also in maintaining a proper balance between goals (see Fishbach & Dhar, 2005), goal violations can occur. So, if people then do violate a goal, it may be better to perceive this behavior as justified rather than experiencing it as failure. In the domain of eating behavior, it has already been found that a flexible approach to dieting, where "forbidden foods" are allowed to some extent, leads to better outcomes than more rigid

diets where diet slips are not tolerated at all (e.g., Coelho do Vale, Pieters, & Zeelenberg, 2016; Westenhoefer, Stunkard, & Pudel, 1999). However, this does not automatically mean that all instances of self-licensing eventually support goal striving, as this should only be the case when it is purposefully applied with a focal goal in mind ('I can eat pizza once in a while so I am able to control myself the rest of the time'). If licensed indulgence simply stems from hedonic tendencies, without any strategic considerations for long-term goal attainment, it is not expected to be conducive to successful self-regulation. Nonetheless, the current literature on self-licensing makes no distinction between strategically and hedonically motivated self-licensing. The present dissertation will therefore investigate whether distinct types of self-licensing can be identified based on whether and how the employment of justifications benefits or harms self-regulation over time.

Practical implications

Besides the theoretical relevance of looking at more long-term outcomes of self-licensing, this knowledge is also pivotal to the development of appropriate intervention methods that aim to target self-licensing processes. As there is currently not enough insight in the role of justification in successful self-regulation, there is little direction for how to approach this issue. At the same time, there is a pressing need for effective interventions to deal with societal problems resulting from poor self-regulation such as credit card debt (Baumeister, 2003), academic failure and underachievement (Duckworth & Seligman, 2005), and obesity (Tsukayama, Toomey, Faith, & Duckworth, 2010). As a first step this dissertation aims to identify under what conditions self-licensing can be considered threatening to goal striving (e.g., when individuals justify goal violating behavior too often or too easily) and in what way self-licensing can be conducive to successful self-regulation (e.g., when self-perceptions of one's self-regulatory capacity are protected despite an occasional goal violation). Identifying these conditions can be helpful to very precisely target behavior components that require either reinforcement or modification.

As mentioned earlier, this dissertation examines self-licensing in the context of eating behavior. This specific type of health behavior was not only selected because it involves dealing with repeated self-regulation dilemmas (especially in the current temptation-rich food environment; Lakerveld et al., 2018), but also due to the urgent need to put a halt to the rising rates of overweight and obesity (WHO, 2018). Importantly, there is evidence suggesting that regular calorie-restricting diets do not result in lasting weight loss, and can even result in weight gain in the long run (Mann et al., 2007). Also,

behavior change techniques aimed at improving self-regulatory skills seem to mainly focus on impulsive determinants of self-regulation failure (e.g., Beard, Sawyer, Hofmann, 2012), while self-licensing demonstrates that reflective considerations can lead to failure as well. Hence, there is room for exploring alternative approaches to tackling unhealthy eating behavior that can complement currently available interventions. As the present research on self-licensing will lead to better understanding of self-regulation over time, this may ultimately translate to the development of new ways to prevent unhealthy eating behavior or promote healthy eating patterns.

Research aims and chapter overview

At first sight self-licensing seems to harm successful goal pursuit, as it makes it easier to choose the immediately gratifying yet irresponsible option. However, to establish whether such justification processes are ultimately harmful or beneficial, other outcomes besides initial failure or success need to be examined. This includes looking at what happens after a moment of (un)justified self-regulation failure in terms of goal-reengagement and changes in perceptions of self-regulatory ability (i.e., self-efficacy, feelings of control, motivation, goal importance), as well as tracking self-licensing and indulgent behavior over longer periods of time. Therefore, a series of experimental, correlational and prospective studies were conducted with the overall objective of exploring whether self-licensing has potential beneficial effects for self-regulation over time. Specifically, the first aim was to corroborate the observation that self-licensing leads to an initial moment of self-regulation failure (**Chapter 2**). The second aim was to expand on this observation by assessing how self-licensing affects sequential confrontation with temptations, with a specific focus on self-perceptions related to self-regulation failure (**Chapter 3 & 4**). Finally, the third aim was to explore whether there are distinctive ways of self-licensing that have differential effects for self-regulation over time, by keeping track of indulgent behavior over a longer time period (**Chapter 5**).

Because the studies reported in this dissertation were performed in the domain of eating behavior, all studies reported in the chapters described below included participants for which unhealthy but delicious foods constituted a temptation. This means that eating such foods conflicts with a long-term goal like losing weight or staying in shape. After all, without an opposing goal, eating unhealthily or consuming large amounts of food does not necessitate the employment of licenses to justify this behavior. Also, please note that all chapters in this dissertation were written in such a way that they can

be read independently and in any order. As a result, there exists some overlap between the content of these chapters.

Chapter 2 describes two lab studies and a field study in which the pervasiveness of self-licensing in affecting eating behavior is experimentally demonstrated. Whereas previous research has established that self-licensing makes unhealthy food choices more likely, there is limited evidence for self-licensing affecting actual eating behavior in terms of food consumption. Also, because virtually anything can serve as a justification for indulgence, it is important that the empirical evidence reflects this diversity of licenses. Therefore, a variety of justification cues were manipulated in both a lab (Study 1 & 2) and field setting (Study 3), after which participants were exposed to food temptations. It was expected that caloric consumption would be higher for participants in the experimental conditions, where justifications were provided, than participants in the control conditions.

Chapter 3 describes two vignette studies that look beyond the immediate effects of self-licensing as reported in Chapter 2, by focusing on its consequences for goal reengagement. In daily life, people often encounter multiple self-regulation dilemmas, and it is therefore important to understand how self-licensing affects sequential opportunities to indulge. Specifically, it was examined how participants respond to a subsequent self-regulation dilemma when they have previously made an indulgent choice with a license (experimental conditions) or without (control conditions). The likelihood of making a second indulgent choice (Study 1 & 2), and perceived self-regulatory ability (Study 2) were assessed to provide insight into whether self-licensing undermines or supports goal reengagement. Theoretically, reliance on self-licensing can go either way and either impair or promote subsequent attempts at self-regulation, hence no specific hypotheses were formulated.

Chapter 4 describes a momentary assessment study that again examines how self-licensing affects self-regulatory ability and the capacity to deal with subsequent self-regulatory challenges, but this time with a more sophisticated design. Every two hours and over a period of seven days, participants reported on license opportunity, perceived self-regulatory ability, and the food temptations that they experienced. Specifically, food temptation strength, conflict, resistance, and degree of enactment were assessed. This study thereby aimed to provide direct evidence for the conflict-resolving qualities of self-licensing, and to examine the potentially beneficial effects of self-licensing in terms of perceived self-regulatory ability and handling of subsequent temptations. It was expected that self-licensing (partly) resolves the goal conflict that arises when facing temptations, and (based on the findings reported in Chapter 3) that justified indulgence, compared with unjustified indulgence, results in higher levels of perceived self-regulatory ability and better handling of subsequent temptations.

Chapter 5 describes two online studies and a snack diary study that further expand on the proposition that self-licensing can have beneficial effects by introducing the concepts of functional and dysfunctional self-licensing. Specifically, it was theoretically defined and tested under what conditions self-licensing can be considered functional (ultimately serving the long-term goal of weight control) and dysfunctional (threatening successful goal striving). First, a pool of items reflecting functional and dysfunctional ways of self-licensing was tested and representative items were selected (Study 1). Next, their classification was corroborated by examining the associations with indices of (un) successful dietary regulation (Study 2). Lastly, the obtained associations of (dys)functional self-licensing with indices of (un)successful dietary regulation were extended to actual eating behavior, by means of letting participant keep an unhealthy snack diary (Study 3). It was hypothesized that dysfunctional self-licensing would be predictive of higher snack consumption, whereas functional self-licensing would predict lower consumption of unhealthy snacks.

Together, these empirical chapters explore the possibility that self-licensing ultimately supports enduring successful self-regulation. In **Chapter 6** the main findings of the studies described in the previous chapters are summarized and reflected upon in light of the research aims of this dissertation. The theoretical and practical implications are discussed, followed by specific recommendations for future research on self-licensing.

2

Justified indulgence

Self-licensing effects on caloric consumption

Prinsen, S., Evers, C., & De Ridder, D. T. D. (2018). Justified indulgence: Self-licensing effects on caloric consumption. *Psychology & Health*.

Acknowledgement of author contributions:
SP conceptualized the research ideas, developed the research designs, supervised data collection, analyzed and interpreted the data, and drafted the manuscript. CE and DR provided critical feedback on the manuscript. SP revised the manuscript in consultation with CE and DR. DR provided final approval of the version to be published.

Abstract

Objective: Research on self-licensing, i.e., employing justifications to give in to temptation, largely consists of studies examining dichotomous food choices (healthy vs. unhealthy), while evidence for its effects on how much (unhealthy) food is consumed remains scarce. The present studies aimed to demonstrate self-licensing effects on caloric consumption in both a lab (Study 1 & 2) and field setting (Study 3).

Design: In all studies, female student samples were recruited. They either received a justification cue (license condition) or not (control condition), after which they could eat freely from unhealthy snacks (Study 1, $N = 85$ & Study 2, $N = 95$) or choose a snack for direct consumption at a take-out lunch place (Study 3, $N = 110$).

Main outcome measures: Caloric value of consumed snacks (Study 1 & 2) and chosen snack (Study 3).

Results: In all studies, caloric consumption was higher in the license condition compared to the control condition: Participants ate more of the provided unhealthy snacks (Study 1 & 2) and chose a snack of higher caloric value (Study 3).

Conclusion: The present research corroborates self-licensing as an important factor in the consumption of unhealthy foods by employing more ecologically valid outcomes.

The current obesogenic food environment, characterized by the omnipresence and easy accessibility of attractive and energy-dense foods (Swinburn, Egger, & Raza, 1999; Hill, Wyatt, Reed, & Peters, 2003), places a great burden on the individual's capacity to deal with self-regulatory dilemmas. Considering that such dilemmas arise when there is a conflict between a current desire (eating a delicious donut) and a long-term personal goal (losing weight; e.g., Baumeister & Vohs, 2007), it is evidently hard to navigate through today's abundance of food temptations. As a response to this issue, research has predominantly focused on the ability to control one's impulses, with impulses defined as the automatic affective reaction and approach orientation towards attractive objects such as unhealthy foods (e.g., Metcalfe & Mischel, 1999; Nederkoorn, Smulders, Havermans, Roefs, & Jansen, 2006). From this perspective, self-regulation failure stems from impulsive processes taking precedence over reflective considerations (e.g., Hofmann, Friese & Wiers, 2008). However, when our reflective reasoning abilities have the upper hand, this does not necessarily lead to successful self-regulation. In fact, our reasoning can be motivated by our current desires (i.e., motivated reasoning; Kunda, 1990) and result in self-licensing taking place. That is, in response to food temptations, our capacity to reason can be employed to justify indulgence, by coming up with reasons (i.e., justifications) that make the prospective goal-discrepant behavior acceptable to oneself (De Witt Huberts, Evers, & De Ridder, 2014a). Accordingly, studies have demonstrated that the confrontation with food temptations increases the susceptibility to justification cues (i.e., an external cue that can function as a reason or excuse for self-gratification; Okada, 2005; Kivetz & Zheng, 2006).

Although the concept of self-licensing provides an alternative perspective on how people resolve self-regulatory dilemmas, which is relying on justifications to choose immediate gratification over goal-consistent behavior (De Witt Huberts et al., 2014a), relatively little research has looked at its effects on eating behavior. Also, the majority of studies that do address self-licensing effects on eating behavior have examined food choice by providing participants with the simple choice between a healthy and an unhealthy food product. Hence, more insight in how self-licensing affects people's ability to deal with the challenge of eating healthily in today's temptation-rich food environment is needed. Not only does the wide variety of foods to choose from create a conflict of what to eat (food choice), the increase in portion sizes and energy density of foods (Ello-Martin, Ledikwe, & Rolls, 2005) also demands effective regulation of how much to eat (food consumption). Moreover, considering that basically anything can serve as a justification when facing the dilemma between indulging and restraining oneself, it is important that there is a body of studies that reflects this diversity of justification cues. Theoretically, a justification is anything that is generated during a self-regulatory dilemma and is used to allow oneself to violate a long-term goal (De Witt Huberts et al., 2014a). Therefore, the

present studies employed different self-licensing manipulations by using a variety of justification cues, and addressed food consumption in a lab (Study 1 & 2) as well as field setting (Study 3).

Experimental evidence for self-licensing effects on eating behavior

As mentioned previously, most experimental studies that specifically looked into how self-licensing affects eating behavior have focused on food choice. In these studies participants are provided with a (hypothetical) dual choice between a healthy and an unhealthy food item, for example between plain fat-free yoghurt and a large high-fat cookie (Khan & Dhar, 2007), or between a fruit salad and a piece of chocolate cake (Kivetz & Zheng, 2006). To date there are twelve of such food choice studies (reported in six papers), involving different self-licensing manipulations (Kivetz & Zheng, 2006, Study 1c; Khan & Dhar, 2007, Study 3 & 4; Mukhopadyay & Johar, 2009, Study 2, 3 & 4; Wilcox, Kramer, & Sen, 2011, Study 3 & 4; Weibel, Messner, & Brügger, 2014, Study 1 & 2; Salerno, Laran, & Janiszewski, 2015, Study 2 & 3). Typical examples of justification cues are recalling prior restraint (e.g., resisting to buy a tempting product that is on sale; Mukhopadyay & Johar, 2009) or a recent accomplishment (e.g., a raise at work; Wilcox et al., 2011). In all studies it was found that participants in the license conditions were more inclined to choose the unhealthy over the healthy option than participants in the no-license control conditions. However, studies involving more complex food choices (i.e., choosing from a wider variety of products) are lacking, precluding the ecological validity of the licensing paradigm for understanding unhealthy food choices. In daily life, for example in supermarkets and cafeterias, people usually can choose from large assortments of food products. Hence, it is important to establish how self-licensing affects eating behavior under such circumstances.

When moving from food choice to food consumption, the experimental evidence becomes scarcer. Studies on a specific type of justification, compensatory health beliefs (CHBs), have provided first empirical support for self-licensing affecting food intake. CHBs are convictions that the negative consequences of engaging in an indulgent behavior can be neutralized by the positive effects of another behavior (Knäuper, Rabiau, Cohen, & Patriciu, 2004; Rabiau, Knäuper, & Miquelon, 2006). It has been demonstrated that these beliefs can function as a justification, so that when faced with temptation, people form intentions to behaviorally compensate for indulgence (Kronick & Knauper, 2010). Accordingly, holding (diet-specific) CHBs has been found to be associated with

a higher body mass index (BMI; Knäuper et al., 2004), lower intention to diet (Radtke, Kaklamanou, Scholz, Hornung, & Armitage, 2014), and higher caloric intake in dieters (Kronick, Auerbach, Stich, & Knäuper 2011). Importantly, these studies suggest that the compensatory behavior is not performed, strengthening the notion that these beliefs serve to justify indulgence. When looking at experimental evidence, to date there are only three studies that included a justification cue and provide support for self-licensing affecting food consumption. In these studies, instead of providing participants with a choice between a healthy and an unhealthy food product, participants are provided with one or more snack types that they freely can eat from. In the first study by De Witt Huberts, Evers, and De Ridder (2012), perceived effort was manipulated by letting participants do a boring task for either 10 minutes straight (low perceived effort) or twice for 5 minutes (high perceived effort). Participants who thought they had been doing the same boring task twice ate more of the M&M's, crisps, and other unhealthy snacks that were provided afterwards, than participants who thought they had been doing the task only once (though for the same amount of time). Second, Taylor, Webb, and Sheeran (2013) primed self-licensing by letting participants come up with reasons to justify a decision in a fictitious scenario (a university student going on holiday with her friends instead of her boyfriend). Subsequently, these participants ate more M&M's than participants who read the same scenario, but merely had to list and rank possible holiday destinations. Lastly, Chang and Chiou (2014) showed that participants ate more nougats and preferred larger quantities of sugar in their drinks after receiving a purported weight-loss supplement, compared to participants who received an identified placebo. Altogether, these studies provide support for self-licensing encouraging unhealthy food consumption.

Although a promising beginning is made, it is vital to expand the experimental evidence to further substantiate the role of self-licensing processes in food consumption (i.e., how much people eat). Especially considering that overeating has been identified as one of the main causes of the increasing prevalence of overweight and obesity (Gortmaker et al., 2011; Ferrario, 2017), and is stimulated by the current food environment that provides ample opportunity to eat large quantities of (unhealthy) foods (Hill & Peters, 1998). Also, it is deemed important to demonstrate the pervasiveness of self-licensing by demonstrating the diversity in cues that can function as a justification for increased consumption.

The Present Studies

Given the need to further substantiate the extent to which self-licensing affects food consumption, we conducted three studies using different manipulations (i.e., justification cues). The first two studies were conceptual replications of earlier work, where we extend the effect of self-licensing on food choice to food consumption (Study 1), and demonstrated the effect of a previously established justification cue (i.e., perceived effort; De Witt Huberts et al., 2012) on food consumption using a different method (Study 2), to verify that the effects are not restricted to a specific manipulation. For the last study we moved from the lab to the field, and exposed participants to a more ecologically valid environment where they could choose for themselves what they wanted to eat (Study 3). Specifically, after a self-licensing manipulation participants received a voucher that they could exchange for a snack at a local take-out place. Caloric value of unhealthy snack intake (Study 1 & 2) and chosen snack (Study 3) served as dependent measures. Hence, as opposed to food choice studies that sometimes provide hypothetical choices (Wilcox et al., 2011), or present pictures of food products (Mukhopadyay & Johar, 2009; Weibel et al., 2014), our study exposed participants to a direct confrontation with tempting foods. It was hypothesized that participants in the experimental conditions, who received a justification cue, eat more of the unhealthy snacks (Study 1 & 2), and choose snacks of higher caloric quantity (Study 3), than participants in the control conditions.

All studies were conducted in the Netherlands, followed a double-blind procedure, and employed female samples. Participants were drawn from student populations, because especially female students have been found to be susceptible to feeling guilty about snacking between meals (Steenhuis, 2009), and such feelings have been suggested to increase self-licensing (Okada, 2005; Kivetz & Zheng, 2006). To check this assumption, all studies include measures to verify whether participants indeed experience self-regulatory conflict when confronted with tempting foods. After all, without a conflict, there is no need to justify indulgent behavior (De Witt Huberts et al., 2014a).

Study 1 Recalled Success and Snack Intake

Previous studies have demonstrated that merely recalling an accomplishment, by letting participants describe a moment of success in detail and letting them reflect on their feelings, can function as a license to choose French fries over a salad (Wilcox et al., 2011) or M&M's over a granola bar (Salerno et al., 2015). It has been suggested that the feelings of pride and achievement that are associated with this memory can instigate a

sense of goal progress, as pride is generally experienced when people have achieved or made progress towards a goal (Wilcox et al., 2011). Perceived goal progress can in turn function as a license for goal inconsistent behavior, like indulging in unhealthy foods while having the goal to lose weight. Importantly, it has been demonstrated that individuals can even "consume past progress" (p. 371) by recalling past virtuous behaviors that signal goal progress (Fishbach & Dhar, 2005). Interestingly, the source of pride that signals goal progress (e.g., receiving a good grade) can be unrelated to the inconsistent behavior that it justifies (e.g., indulging in unhealthy snacks; Wilcox et al., 2011). In the present study, we used the success license manipulation previously employed by Wilcox et al. (2011) and Salerno et al. (2015), but with food consumption (measured in kcal) instead of food choice as the outcome measure. It was expected that participants who recalled a moment of success would eat more than participants in the no-license control condition. In the work by Wilcox et al. (2011), positive affect (e.g., happiness) has already been ruled out as an alternative explanation for the observed self-licensing effects after recalling a moment of success, and hence will not be controlled for in the present study.

Method

Participants. Ninety-two female students participated in the present study in return for €4,- or course credit. From this sample, seven participants were excluded: six participants for procedural errors (e.g., doing tasks in the wrong order), and one participant for having a food allergy that prohibited eating the provided unhealthy snack (peanut M&M's). This resulted in a final sample of 85 participants, with a mean age of 21.67 years (*SD* = 3.45; range 18 to 44) and a mean self-reported BMI of 21.93 (*SD* = 3.32; range 17 to 42).[1],[2]

The final sample included five participants who reported wanting to gain weight and twelve participants who were satisfied with their current weight, possibly indicating that these participants do not experience self-regulatory conflict when given the opportunity to eat unhealthy snacks. Because a higher sample size is preferred for running separate analyses on these participants, and as exclusion led to similar results, all analyses were performed including these participants. For completeness, the effect of the license manipulation on caloric value of the unhealthy snack intake is also reported for the sample excluding these participants (see Results).

[1] Due to a procedural error, the following variables are missing for six participants: Age, self-reported BMI, weight loss goal, and restrained eating.

[2] There was one participant with a BMI of 41.52 (> 3 *SD* above the mean), who wanted to lose 40 kg of body weight. Excluding this participant resulted in similar outcomes.

Design and procedure. The present study employed an independent groups 1-factor design, with condition (success recall vs. control) as independent variable and M&M consumption (in kcal) as dependent variable. Female students were invited to participate in a study on "memory and taste perception" (cover-story), and were randomly assigned to the license (n = 41) or control condition (n = 44). Upon arrival in the lab, they were seated in a cubicle and told to follow the instructions on the computer screen. The study started with the license manipulation. In the license condition, participants were asked to think back to a moment of academic success. They had to write down this memory in detail and were specifically instructed to remember how they felt at that moment of success. In the control condition, participants were asked to describe an ordinary day, by specifying their activities from the moment that they wake up till the moment that they go to sleep (Wilcox et al., 2011; Salerno et al., 2015). All of the activities were supposed to be typical of an ordinary day, to avoid any special activities that may serve as a license. After the manipulation, participants answered questions about their feelings of pride and success, which served as a manipulation check. This was followed by filler questions about their memory of M&M's, which were interspersed with control questions to assess liking of M&M's and regularity of eating M&M's. Next, participants were provided with a plastic bowl filled with 200 grams of M&M's, and asked to taste at least one of each color, while filling out another questionnaire consisting of merely filler items. To further conceal the true purpose of this tasting session, that is assessing how much participants ate, they were asked to throw any remaining M&M's and the plastic bowl in the bin standing next to them (suggesting that these would be thrown out directly). Lastly, participants filled out a questionnaire assessing age, height and weight, goal weight, and restrained eating. After completing the study, they were thanked and reimbursed for their participation. At that point, the trash bags were unobtrusively removed and weighted.

Measures.

Manipulation check. Five items were administered to assess participants' feelings of success while thinking back to a moment of academic success (α = .94). Participants had to indicate to what degree they felt pride, success, good about themselves, positive about themselves and that they had performed well, on a scale ranging from 1 (*Not at all*) to 7 (*Very much*). A mean score was calculated to reflect overall feelings of success.

Control variables. Six items were administered to control for liking of M&M's: 'How much do you like M&M's?', 'How attractive do you find M&M's?' and one question for each of the four colors of M&M's ('How much do you like the taste of the [blue] M&M?'), with answer options on a scale ranging from 1 (*Not at all*) to 7 (*Very much*). A

mean score was calculated to reflect liking of M&M's (α = .90). Two open-ended questions were administered to control for differences in regularity of eating M&M's: 'How often do you eat M&M's?' and 'When was the last time you ate M&M's?'. The answers were coded afterwards, on a scale ranging from 1 (*I never eat M&M's*) to 7 (*A few times per week*) for the former and 1 (*I never eat M&M's*) to 7 (*Yesterday or today*) for the latter question.

Caloric consumption. The amount of M&M's consumed was measured in grams and converted into kcal.[3]

Age. Participants reported their age in years.

Self-reported BMI. Participants' BMI was calculated using their reported weight and height.

Weight loss goal. Participants' goal weight was subtracted from their actual weight, to provide an index of how much kilograms of weight participants wanted to lose. This served as an indicator for experiencing self-regulatory conflict when confronted with tempting foods.

Restrained eating. To assess dieting behavior, the 10-item Restraint Scale was administered (Herman & Polivy, 1980; α = .80). An example item is 'I feel guilty after I ate too much'. Answers were given on scales ranging from either zero to three or zero to four, with different labels depending on the item, where higher scores represent higher levels of restrained eating. See Herman and Polivy (1980) for the exact answer scales.

Results

Descriptives and randomization check. On average, participants who wanted to lose weight reported a mean weight loss goal of 4.19 kg (SD = 5.40, range 1 to 40 kg, see Note 2). With a mean of 1.50 (SD = .57, range .10 to 2.90) participants scored relatively high on restrained eating. They also reported a high liking for M&M's (M = 5.02, SD = 1.28). Separate ANOVAs revealed no significant differences between conditions for age (p = .197), control variables (e.g., liking of M&M's; all ps > .101), self-reported BMI (p = .304), weight loss goal (p = .460), and restrained eating (p = .800), indicating successful randomization.

[3] A square root transformation was performed to deal with the skewed distribution and outliers. For sake of clarity, untransformed results are reported.

Manipulation check. An ANOVA with condition (license vs. control) as independent variable and feelings of success as dependent variable revealed that the license manipulation was successful. Participants in the experimental condition felt more successful (M = 6.27, SD = .61) than participants in the control condition (M = 4.90, SD = 1.01), $F(1, 83) = 56.32$, $p < .001$, $\eta^2 = .40$.

Main effect of license on caloric consumption. An ANOVA with condition (license vs. control) as independent variable and caloric consumption as dependent variable revealed an effect of condition on how much participants ate. When participants were given the opportunity to use prior success as a license, they consumed 316.44 kcal (SD = 296.42), whereas participants who were not provided with this opportunity consumed 197.59 kcal (SD = 183.67), $F(1, 83) = 5.15$, $p = .026$, $\eta^2 = .06$.

A similar analysis was performed on the sample excluding participants who wanted to gain weight or who did not have a specific weight loss goal. The condition effect remained significant: Participants in the license condition (n = 28; M = 344.87, SD = 310.39) ate more than participants in the control condition (n = 40; M = 207.36, SD = 198.68), $F(1, 66) = 5.02$, $p = .028$, $\eta^2 = .07$.

Discussion

As hypothesized, when participants recalled a moment of academic success, they subsequently ate more of the provided unhealthy snack than participants who recalled an ordinary day. More specifically, there was a difference of almost 119 kcal. Thereby this study provides support for the proposition that the perception of goal progress inferred from feelings of pride can function as a license for indulgence. Whereas in this study the presence of a self-regulatory conflict was verified by looking at participants' weight loss goal, in the next study a more inclusive measure of *eating concerns* was administered, to assess both the goal to lose weight and to eat healthily. Again, caloric consumption was examined, but this time it was preceded by a justification manipulation of perceived effort.

Study 2 Perceived Effort and Snack Intake

Hard work is identified as one of the main reasons used to justify indulgence (Kivetz & Zheng, 2006). After working hard, people find it easier to treat themselves, as it then feels like they deserved it. Accordingly, perceived effort has been found to affect both food choice (Kivetz & Zheng, 2006) as well as unhealthy food consumption (De Witt Huberts et al., 2012). The present study is a conceptual replication of this previous research, as it also manipulated perceived effort but with a different manipulation. This was done by letting participants do a rather difficult task, after which they were provided with information about relative task difficulty. Specifically, it was casually revealed that other participants received an easier (high perceived effort condition) or more difficult task (low perceived effort condition). A control condition was added in which participants did not receive any reference about how difficult the task was. After this effort manipulation, participants could eat freely from unhealthy snacks. It was expected that participants who read that they performed the difficult version of the task would eat more than participants who read that they performed the easy version, and compared to participants who did not receive any reference to task difficulty. Actual performance on the task was controlled for by means of the number of errors that participants made.

Method

Participants. A total of 100 female students participated in return for €3,- or course credit. From this sample, five participants were excluded: two participants for making too many mistakes in the writing task (extreme outliers on error percentage > 3 *SD* above the mean; see Measures), two participants for procedural errors (e.g., snack consumption was not registered), and one participant for having a food allergy that prohibited eating the provided unhealthy snack. This resulted in a final sample of 95 participants with a mean age of 21.60 ($SD = 2.76$; range 16 to 33).

Design and procedure. The present study employed an independent groups 1-factor design, with condition (low effort vs. high effort vs. control) as independent variable and M&M and popcorn consumption (in kcal) as dependent variable. Female students were invited to participate in two supposedly unrelated studies. After giving informed consent and reporting their age, participants were seated in a cubicle and started with the "first study" which contained the writing task. The instructions were to write a (fictional) story about an animal, but without using the letters 'A' and 'N' (adopted

from Schmeichel, 2007). They had 6.5 minutes time to write their story that was supposed to be as long as possible. Then, it was examined how difficult, effortful and fun the task was (task evaluation). This was followed by the manipulation, for which participants were randomly assigned to one of three conditions. Participants read that the experimenter wanted to double-check the allocation to conditions, so they had to report what kind of instructions they received. The answer options were manipulated, so that next to the correct answer ('do not use the letters A and N') participants would either see 'do not use the letters X and Y' (others received more easy task; high effort condition; $n = 32$) or 'do not use the letters A, N, K and P' (others received more difficult task; low effort condition; $n = 34$). In the control condition ($n = 29$), participants were not provided with a reference to task difficulty, so no information about another condition was provided.[4]

The second part was presented as a study on "sustainability". Participants first watched an excerpt of a nature documentary. This was done in a living room setting, and they were provided with popcorn (70 grams) and M&M's (200 grams) "to make themselves comfortable". The true purpose was to see how much of these snacks the participants would consume. Then, participants went back to the cubicle and filled out a questionnaire on "lifestyle and habits" in which an index of BMI and eating concerns were unobtrusively assessed. Lastly, the liking of the snacks was measured in a "living room evaluation form". After completing the studies, participants were thanked, debriefed, and received their compensation.

Measures.

Task evaluation. To verify that there were no differences in how the task was experienced before the manipulation, participants were asked how difficult, effortful and fun the task was (e.g., 'How difficult did you find the task?'). Answers were given on a 5-point scale ranging from 1 (*Not at all*) to 5 (*Very much*).

[4] A pilot test was performed to verify that the manipulation of task difficulty did not affect perceived depletion of self-control resources (i.e., impairment of the ability to self-regulate; e.g., Baumeister & Vohs, 2007). It has been demonstrated that not actual depletion, but perceived availability of mental resources predicts task performance (Clarkson, Hirt, Jia, & Alexander, 2010). Hence, it was first verified that the effort exerted on the task would be perceived as low or high in comparison to an alternative task, but not in terms of absolute effort. A sample of 67 participants with a mean age of 21.84 ($SD = 1.93$; range 18 to 27) were randomly assigned to one of three conditions (high effort condition, $n = 24$; low effort condition, $n = 20$; control condition; $n = 23$). After doing the writing task they filled out the 25-item State Self-Control Scale ($\alpha = .93$; Ciarocco, Twenge, Muraven, & Tice, 2010). Participants reported a mean level of self-control of 4.82 ($SD = .79$). An ANOVA with condition as independent variable and state self-control scores as dependent variable revealed no differences between conditions, $F(2, 64) = 1.02$, $p = .365$. Hence, the alternative explanation –that differences between conditions are caused by a variance in state self-control levels as a result of the manipulation– was ruled out.

Error percentage. To check whether there were no differences between conditions in task performance, and to identify participants who did not follow the instructions, the times that the letters 'A' and 'N' were used (mistakenly) were counted. This number was divided by the total numbers of letters used, to calculate an error percentage.

Caloric consumption. The amount of popcorn and M&M's consumed were measured in grams and the caloric value of each snack was calculated. A sum score represented total kcal consumed (see Note 3).

Self-assessed BMI. An indirect measure of BMI was employed. Participants reported how much the statement 'I have a healthy BMI' applied to them on a 7-point scale ranging from 1 (*Does not apply to me at all*) to 7 (*Totally applies to me*).

Eating concerns. Four self-developed items measured eating concerns: 'I watch what I eat'; 'I find my weight important'; 'I watch my weight'; and 'I find eating healthy important'. Answers were given on a 7-point scale ranging from 1 (*Does not apply to me at all*) to 7 (*Totally applies to me*). A mean score was computed (α = .85).

Snack liking. To control for potential differences in liking of the presented snacks, two questions were asked: 'How much do you like M&M's?' and 'How much do you like popcorn?'. Answers were given on a 7-point scale ranging from 1 (*Not at all*) to 7 (*Very much*).

Results

Descriptives and randomization check. Participants were quite eating concerned (M = 5.34, SD = 1.12; range 3 to 7) and judged their BMI as healthy (M = 5.77, SD = 1.41). Also, they quite liked popcorn (M = 4.20, SD = 1.77) and M&M's (M = 5.59, SD = 1.61).[5] With respect to the writing task; they reported that it was rather difficult (M = 4.46, SD = .60), moderately effortful (M = 3.77, SD = .74) and fun to do (M = 3.55, SD = 1.04). On average, participants used 186.60 letters in their story (SD = 81.84). The mean error percentage was .7% (representing ± 1 error), and percentages ranged from 0 to 4%. Separate ANOVAs revealed no significant differences between conditions for age (p = .589), self-assessed BMI (p = .715), eating concerns (p = .613), task evaluation (all ps > .227), error percentage (p = .408), and liking of snacks (all ps > .456), indicating successful randomization.

[5] Because of the use of paper questionnaires, there were some missing values: one for self-assessed BMI, one for eating concerns, and five for snack liking.

Caloric consumption. An ANOVA with condition as independent variable and caloric consumption as dependent variable revealed a significant difference: Participants in low effort condition consumed 102.73 kcal (*SD* = 140.71), participants in control condition consumed 138.89 kcal (*SD* = 186.68), and participants in the high effort condition consumed 233.11 kcal (*SD* = 228.23), $F(2, 92) = 6.38$, $p = .003$, $\eta^2 = .12$. A Bonferonni post hoc analysis revealed a significant difference between the high effort and low effort conditions, $p = .002$, and between the high effort and control condition, $p = .047$. There was no difference between the low effort and control condition, $p = 1.00$.

Discussion

As hypothesized, participants who read that they received the difficult version of the writing task subsequently ate more of the unhealthy snacks than participants who read that they received the easy version or who did not receive any reference about task difficulty. More specifically, differences of 130 (high effort compared to low effort condition) and 94 kcal (high effort compared to control condition) were observed. Overall, the results strengthen the notion that effort can serve as a license, by demonstrating that this effect is not restricted to the specific methods that have been used previously (De Witt Huberts et al., 2012; Kivetz & Zheng, 2006). For the next study, we moved from the lab to the field, and measured caloric value of food choice.

Study 3 Perceived Goal Discrepancy and Snack Choice

When it comes to eating behavior, people who have the goal to lose weight often simultaneously have the opposing goal of eating enjoyment (Stroebe, Van Koningsbruggen, Papies, & Aarts, 2013). There is evidence that when people come closer to a focal goal, such as losing weight, they feel "liberated" to pursue inconsistent goals, such as eating enjoyment (Fishbach & Dhar, 2005). Although these studies were not conducted to demonstrate self-licensing effects, the findings support the notion that prior restraint can be used as a reason for subsequent indulgence (De Witt Huberts et al., 2014a). That is, a small (perceived) distance to one's goal can function as a license to choose immediate gratification (chocolate bar) over goal-consistent behavior, because giving priority to eating enjoyment may feel more acceptable once the attainment of one's weight loss goal is in sight. To experimentally manipulate goal discrepancy, the perceived goal progress induction by Fishbach and Dhar (2005) was employed, in which

participants report their current and goal weight on a scale that makes the discrepancy between the two look either small or large (see Manipulation). Subsequently, participants could choose freely from a wide range of food products at a local take-out lunch place. It was expected that a small perceived discrepancy would induce a sense of being close to one's goal weight, thereby serving as a license to choose a high-caloric snack, whereas a large perceived discrepancy was expected to increase the motivation for goal-consistent behavior (e.g., Koo & Fishbach, 2008), and hence result in snack choices of lower caloric value.

Method

Participants. A total of 116 female participants who wanted to lose weight filled out the survey and exchanged their voucher for a snack. Six participants were removed because they did not correctly follow the instructions (e.g., they exchanged their voucher a day after the manipulation). This resulted in a final sample of 110 participants, with a mean age of 21.38 (*SD* = 3.58; range 17 to 43) and a mean self-reported BMI of 22.13 (*SD* = 2.26; range 18 to 30).[6]

Because pre-screening of participants (to verify that they wanted to lose weight which was a prerequisite for the employed manipulation) was undesirable in the sense that it would undermine the cover story, an additional 53 students that did not want to lose weight participated as well. They reported that they did not have a specific goal weight ($n = 36$) or that they wanted to gain weight ($n = 17$). These data were used to verify that without the self-regulatory dilemma of losing weight versus eating enjoyment, a justification cue does not result in self-licensing (see Results). Hence, for the main analyses, a subsample ($n = 110$) was used from the total sample of 169 participants.

Design and procedure. The study employed an independent groups 1-factor design, with condition (small vs. large discrepancy between current and goal weight) as independent variable and caloric value of snack choice as dependent variable. Female students were approached on campus between 2 and 5 p.m., so the food product that they chose can generally be considered a mid-afternoon snack. The study was presented as customer research for a local take-out lunch place. Participants were asked to fill out a short survey, for which they would receive a voucher for a snack at the respective lunch place. The survey consisted of filler items supporting the cover story and the manipulation of goal discrepancy (see Manipulation). Participants were randomly assigned to either the large ($n = 54$) or small goal discrepancy condition ($n = 56$). The manipulation included an

[6] Based on $N = 94$, as sixteen participants did not report their current weight.

assessment of participants' current and ideal weight, and age and height were measured in separate items. After filling out the survey participants received a (coded) voucher for a free snack. The experimenter registered the voucher code and at what time the participant finished the survey, and employees of the lunch place registered the code of the voucher, the time of exchange, and the respective snack choice.

Manipulation. The perceived discrepancy between participants' current and goal weight was manipulated to look either small or large (Fishbach & Dhar, 2005). Participants were asked to report their current weight in a textbox in the center of a scale that had either - 5 kg and + 5kg or - 20 kg and + 20 kg as its endpoints. Then they had to indicate their goal weight, by coloring the arrow that extended outward to the left (to endpoint - 5 or - 20 kg) to the point that represented their goal weight. On the narrow (- 5 kg) scale, a goal weight of 3 kg less than one's current weight would mean coloring 60% of the scale. In contrast, on the wide (- 20 kg) scale, wanting to lose 3 kg would result in coloring only 15% of the scale. Hence, the visual discrepancy between one's current and goal weight would appear smaller on the wide scale (small goal discrepancy condition) compared to the narrow scale (large goal discrepancy condition).

Measures.

Age. Participants reported their age in years.

Self-reported BMI. Participants' self-reported BMI was calculated using their reported height and current weight.

Goal discrepancy. The colored part of the 4.4 cm-long arrow was measured and registered in millimeters, and subsequently converted to represent the goal discrepancy in percentages as well as kilograms. For example, if the colored part of arrow measured 15 mm, this was converted into 34.1%, and 1.7 kg (large discrepancy condition) or 6.8 kg (small discrepancy condition).

Caloric value of snack choice. Participants were free to choose any snack (including beverages) except for coffee or tea (as it could not be assessed whether participants added milk and/or sugar). The caloric value of each snack was calculated using the nutrition labels. For the snacks that came without a nutrition label, the caloric value was calculated using standard nutritional information provided online by a national governmental organization concerned with nutrition and health (Netherlands Nutrition Centre, 2016).

Time between manipulation and voucher exchange. The time (in minutes) between finishing the survey (and hence the manipulation) and the voucher exchange was calculated by subtracting the first from the latter. This was done to ensure timely exchange and to check for differences between conditions as well as its potential association with the dependent measure.

Results

Descriptives and randomization check. The mean time between the manipulation and the voucher exchange was 12.74 minutes (SD = 22.62) with a range from 0 to 140 minutes.[7] There was no significant correlation between these times and caloric value of the chosen snacks, $r = .06$, $p = .549$. The chosen snacks included 74 food items (e.g., chicken sandwich, cinnamon roll, fruit salad) and 36 beverages (e.g., coca cola, orange juice, yoghurt drink). Separate ANOVAs revealed no significant differences between conditions for age ($p = .620$), self-reported BMI ($p = .335$), and time between manipulation and voucher exchange ($p = .576$), indicating successful randomization.

Manipulation check. Participants in the large discrepancy condition on average colored 50% of the arrow (range 2 to 100), representing a goal weight that is 2.5 kg (range .1 to 5) below their current weight. Participants in the small discrepancy condition colored 18.1% of the arrow (range 2 to 52), representing a goal weight that is 3.6 kg (range .5 to 10.5) below their current weight. An ANOVA with condition as independent variable and the discrepancy in millimeters was performed and showed that this difference was significant, $F(1,108) = 45.41$, $p < .001$, $\eta^2 = .30$.

Caloric value of snack choice. An ANOVA with condition as independent variable and caloric value of snack choice as dependent variable revealed that participants in the small discrepancy condition chose snacks that were higher in caloric value (M = 310.60, SD = 145.22) than participants in the large discrepancy condition (M = 256.65, SD = 131.34), $F(1,108) = 4.17$, $p = .044$, $\eta^2 = .04$.

A similar analysis was performed on the participants who indicated wanting to gain weight or who had no weight loss goal (n = 53), to verify that without the self-regulatory dilemma of losing weight versus eating enjoyment, a justification cue does not result in self-licensing. Indeed, no difference was found between conditions for caloric value of the chosen snacks. Participants in the small discrepancy condition (n = 25) chose snacks that were equal in caloric value (M = 329.17, SD = 162.24) to participants in the large discrepancy condition (n = 28; M = 331.32, SD = 151.73), $F(1, 51) < 1$, $p = .96$, $\eta^2 < .001$.

[7] Based on N = 103, as for seven participants the time of the survey was not registered.

Discussion

As hypothesized, participants who were led to believe they were closer to their goal weight chose snacks of higher caloric value than participants for whom their goal weight seemed further away. Specifically, a difference of almost 54 kcal was observed. Interestingly, participants who were in the small goal discrepancy condition and chose high-caloric snacks wanted to lose more weight than participants in the large goal discrepancy condition. This is probably due to anchoring effects (Fishbach & Dhar, 2005), as an endpoint of -20 kg on the wide scale in the small goal discrepancy condition sets a different reference point than an endpoint of -5 kg on the narrow scale in the large goal discrepancy condition. Nonetheless, this observation strengthens the findings because even though these participants wanted to lose more weight, they still chose more calorie-rich snacks than participants who wanted to lose less weight. Hence, this supports the assumption that it is not a matter of *actual* goal discrepancy, as participants in the large discrepancy condition were objectively closer to their goal weight, but a matter of *perceived* discrepancy that drives the effect. The results further affirm that having self-regulatory dilemma is a prerequisite for self-licensing to work; self-licensing does not take place when there is no goal conflict. Accordingly, the manipulation did not affect participants who did not want to lose weight or did not have a specific weight loss goal.

General Discussion

In three studies, performed in lab and field settings, it was demonstrated that justification cues increase the caloric value of both food consumption (Study 1 & 2) and a self-selected snack (Study 3). Thereby these studies do not only contribute to the currently limited experimental evidence on self-licensing affecting eating behavior in terms of food consumption, but also expand on previous self-licensing studies that have mainly examined food choices and provided no direct confrontation with tempting foods (e.g., Wilcox et al., 2011). Importantly, the mirroring of certain characteristics of the current obesogenic food environment, specifically the easy access to large portions and assortments of energy-dense foods (Swinburn et al., 1999; Hill et al., 2003), increases the ecological validity of the present work. This also pertains to the variety of justification cues that were used in the present research, as virtually anything can count as a justification when it is employed to make a goal violation acceptable to oneself (De Witt Huberts et al., 2014a).

Practical and theoretical implications

Looking at obtained effect sizes, the observed increase in consumption resulting from self-licensing processes ranged from 54 to 130 kcal. It has been suggested that decreasing one's intake with only 100 kcal a day can prevent weight gain for most individuals (Hill et al., 2003). Hence, although the increase in caloric consumption in the present studies might seem small, when this is repeated on a daily basis, such differences can mean the difference between weight gain and weight maintenance. This also stresses the importance of looking beyond single outcomes (i.e., one eating occasion) in future studies. Mainly because also overeating in small amounts, like 100 kcal extra per day, will eventually result in weight gain when it is done repeatedly. However, it may also be possible that after overeating some form of compensation occurs, for example by eating less at a next meal. It is thus important to look at how eating patterns are affected by self-licensing. For example by examining how people pursue their weight loss goal after an instance of justified indulgence, or by tracking eating behavior patterns and justification use (types and frequency) over longer periods of time by means of experience sampling or momentary assessments methods. Ultimately, such insights may provide directions for developing ways to improve effective handling of self-regulatory dilemmas imposed by today's obesogenic food environment.

The current work also has important theoretical implications. Besides expanding the empirical evidence for self-licensing theory by demonstrating self-licensing effects on food consumption with a diversity of justification cues, the present research can also shed new light on previous studies using manipulations that can be interpreted as justification cues. These studies were designed with a different purpose, but do show effects that fit a self-licensing perspective. To illustrate, Urbszat, Herman and Polivy (2002) showed that restrained eaters (i.e., individuals who attempt to restrict their food intake) ate more cookies after being told to start a week-long low-calorie diet directly after their participation in the "cookie taste-rating task", compared to the restrained eaters who were not asked to diet and unrestrained eaters. A plausible explanation for this finding is that the foresight of a period of deprivation functioned as a license to indulge one last time. In addition, Mukhopadyay, Sengupta, and Ramanathan (2008) demonstrated that participants who recalled a situation where they resisted a food temptation ate more cheeseballs (Study 2) and cookies (Study 3) than participants who recalled a moment of succumbing to temptation. Although these studies were not conducted to demonstrate self-licensing effects, the findings support the notion that prior restraint can be used as a reason for subsequent indulgence (De Witt Huberts et al., 2014a).

Limitations and recommendation for future research

There are some limitations that warrant attention. First of all, the present studies do not provide direct evidence that participants used their reasoning abilities to justify their behavior. However, this has been established in previous work on self-licensing (De Witt Huberts, Evers & De Ridder, 2014b). In two studies it was demonstrated that when participants were exposed to a luxurious chocolate bar, the subjective evaluation of temptation strength predicted the number of both employed (Study 1) and self-construed reasons (Study 2). This supports the proposition that temptations activate reasoning processes to justify giving in to the desire. Nonetheless, additional studies are needed to further corroborate this proposition, for example by replicating the present studies and incorporating measures that are indicative of reasoning processes taking place.

Secondly, how certain justification cues affect indulgent behavior has been illuminated in earlier studies (Wilcox et al., 2011; Salerno et al., 2015), but the present research does not provide further evidence for the proposed underlying mechanisms. Hence, another fruitful route for self-licensing research is the examination of mechanisms underlying the observed effects. This can, however, offer important insight into the conditions that shape self-licensing effects. For example, when pride promotes self-awareness ('I am a disciplined person') rather than a sense of achievement, opposite effects have been observed where participants preference for indulgent choices was decreased (Wilcox et al., 2011). This is based on the notion that when people are in a state of high self-awareness, they prefer to act in line with their self-perceptions and personal goals. In addition, Salerno et al. (2015) showed that the effect of pride on indulgent choices was mediated by a sense of goal progress, but when pride was used to make inferences about one's self-concept, this mediated the effect of pride on increased goal-consistent behavior. Thus, more in-depth examinations of *how* specific justification cues affect indulgent behavior are needed to advance our understanding of self-licensing processes.

Thirdly, in the current lab studies only unhealthy foods were provided to participants. A more stringent test would be to present participants with both unhealthy as well as healthy foods. This would also be more representative of the current food environment, where healthy foods are still available, even though less ostentatiously presented as their unhealthy counterparts. A study on emotional licensing (i.e., using negative affect to justify indulgence) has provided first evidence that when both healthy and unhealthy snacks are available for consumption, only unhealthy food intake increased after a licensing manipulation (De Witt Huberts, Evers & De Ridder, 2018). Importantly, this supports the notion that justifications are only necessary for behavior that violates one's long-term goals (e.g., unhealthy foods when one wants to lose weight). Hence, behavior

that is in line with one's goals, such as eating healthy snacks, does not require a justification (Okada, 2005). For future research, it is recommended to extend this observation that only unhealthy food consumption (and not healthy food consumption) is affected by self-licensing to a wider variety of justification cues.

Lastly, a few limitations concerning the employed measures and sampling method should be mentioned. In Study 2 an indirect measure of BMI was employed (participants indicated whether they had a healthy BMI). This measure fitted the cover story, but is obviously less reliable than an objective measure of height and weight to calculate BMI. As a consequence, we were not able to remove or run separate analyses on participants who were satisfied with their current weight or wanted to gain weight. In addition, in all three studies hunger was not measured and could neither be controlled for. Not surprisingly, baseline hunger is an important predictor of food intake in lab studies assessing eating behavior (Robinson et al., 2017). Also, in Study 3 the snack choices were registered, but it was not assessed whether participants actually consumed the snack. Furthermore, additional studies with samples that are more representative of the general population are necessary, to verify that the current observations in female student samples can be generalized to a broader public. Lastly, small to medium effect sizes were obtained in Study 1 and Study 3. Therefore, for future studies it is recommended to take this into account when doing power calculations.

Conclusion

Altogether, the present findings show that when self-licensing occurs to serve our desire for immediate gratification, increased caloric consumption becomes more likely. Important next steps are improving our understanding of the mechanisms underlying self-licensing and specific justification cues, as well as to see how self-licensing affects general eating patterns, preferably by tracking eating behavior in real-life. Especially the latter is necessary to see whether self-licensing ultimately threatens the attainment of long-term goals such as losing weight.

3

Oops I did it again

Examining self-licensing effects in a subsequent self-regulation dilemma

Prinsen, S., Evers, C., & De Ridder, D. T. D. (2016). Oops I did it again: Examining self-licensing effects in a subsequent self-regulation dilemma. *Applied Psychology: Health and Well-Being*, 8, 104-126.

Acknowledgement of author contributions:
SP, CE, and DR conceptualized the research ideas. SP developed the research designs in consultation with CE and DR. SP collected the data, analyzed the results, interpreted the data and drafted the manuscript. CE and DR provided critical feedback on the manuscript. SP revised the manuscript in consultation with CE and DR. DR provided final approval of the version to be published.

Abstract

Background: Previous studies have mainly examined the immediate effects of self-licensing on self-regulation failure. The present vignette studies examined what happens when a second self-regulation dilemma is encountered.

Methods: In Studies 1 (N = 52) and 2 (N = 166), participants read a vignette in which the protagonist chooses to buy a treat while being on a diet, which was preceded by a license (License condition) or not (Control condition). The self-reported likelihood of indulging again when a second dilemma was presented in the same situation served as the dependent variable. Study 2 included measures of self-regulatory ability (motivation and self-efficacy) and also presented the dilemma in a new situation.

Results: Study 1 showed that participants were more likely to indulge again after an initial indulgent choice with a license. This was replicated in Study 2, which also showed that self-licensing had no effect on goal re-engagement in a new situation. A marginally significant positive effect of self-licensing was found for self-efficacy.

Conclusions: The results obtained suggest that self-licensing negatively affects goal re-engagement in the same situation, but not in a new situation. Whether self-licensing maintains or increases feelings of self-efficacy needs to be validated in future studies.

Considering the current global obesity epidemic (Taylor, Parento, & Schmidt, 2014), it is evident that many people are not able to successfully regulate their eating behavior. Making healthy food choices is often perceived as a matter of controlling one's impulses: putting a brake on our automatic tendencies to order French fries instead of a side salad. Accordingly, many studies have highlighted this automatic route to self-regulation failure (e.g., Strack & Deutsch, 2004; Baumeister, 2002; Tice, Bratslavsky, & Baumeister, 2001). Self-regulation failure can be defined as giving in to momentary allurements (i.e., delicious but unhealthy foods) that threaten the attainment of important long-term goals (i.e., a healthy body weight; Fischbach, Friedman, & Kruglanski, 2003). However, over the last couple of years, it is becoming more acknowledged that self-regulation failure is not always the result of being unable to inhibit impulses (De Witt Huberts, Evers, & De Ridder, 2014a; Fujita, 2011; Inzlicht & Schmeichel, 2012; Gillebaart & De Ridder, 2015). That is, failure to adhere to long-term goals can also stem from deciding to (temporarily) abandon one's goal, by relying on reasons to justify this goal disengagement (see De Witt Huberts, Evers, & De Ridder, 2014b). This phenomenon is referred to as self-licensing: "the act of making excuses for one's discrepant behavior before actual enactment, such that the prospective failure is made acceptable for oneself" (De Witt Huberts et al., 2014a, p. 121). So instead of succumbing to the overwhelming urge to eat those crispy French fries, excuses (i.e., licenses) like 'I worked hard this week, I deserve it' or 'I feel sad, I need something to cheer me up' can be used to justify this indulgence.

This conception of self-licensing differs from the classic definition of (moral) licensing, as introduced by Monin and Miller (2001; see also Merritt, Effron, & Monin, 2010) who postulated that people who behave in a good (moral) way later feel that they are permitted to engage in undesirable (immoral) behavior. That is, self-licensing as defined by De Witt Huberts et al. (2014a) necessitates a self-regulation dilemma that prompts the need to find and/or use (available) excuses. Hence, this conceptualization of self-licensing comprises more than performing undesirable actions in response to having earned the right to do so, and states that self-licensing processes are triggered by the experience of a self-regulation dilemma (i.e., a temptation that threatens a long-term goal).

This new conceptualization of self-licensing, that represents an additional route to self-regulation failure, is supported by a growing body of empirical evidence showing that self-licensing leads to an increase in unhealthy food intake (e.g., De Witt Huberts, Evers, & De Ridder, 2012; Taylor, Webb, & Sheeran, 2013). In these studies, the opportunity to justify indulgence is usually manipulated by providing participants with a compelling license just before they are confronted with food temptations, for example by letting them believe that they exerted effort on a difficult task (De Witt Huberts et al., 2012). Although these immediate effects suggest that self-licensing impedes healthy eating

behavior, it remains unclear what happens to self-regulation attempts after people have indulged with a license. In other words, what are the consequences of self-licensing for subsequent goal striving? For example, after ordering French fries instead of a side salad, a new dilemma may arise when deciding between passing on dessert or having a delicious chocolate pudding. On the one hand, it is plausible that after allowing oneself to indulge, it becomes easier to find or to use similar licenses to indulge again. On the other hand, it can be argued that justified abandonment of a diet goal may boost renewed efforts of goal-directed behavior. Hence, it may be that reliance on self-licensing can go either way and either impair or promote subsequent attempts at self-regulation. The present studies are the first to provide evidence for one of these potential outcomes, considering that as of yet there is no empirical account of the consequences of self-licensing for goal re-engagement. Thus this work also responds to recently voiced concerns about studying behavior in a vacuum and thereby neglecting the possible spillovers to subsequent behavior (see Dolan & Galizzi, 2015). In both studies an experimental vignette design is employed to examine how participants respond to a subsequent self-regulation dilemma when they have previously made an indulgent choice with or without a license.

Self-licensing and eating behavior

Building on studies on moral licensing (e.g., Tiefenbeck, Staake, Roth, & Sachs, 2013; Kouchaki, 2011; Blanken, Van de Ven, & Zeelenberg, 2015) and licensing in the domain of consumer behavior (e.g., Khan & Dhar, 2006; Kivetz & Simonson, 2002; Okada, 2005), self-licensing effects are now also established in the domain of eating behavior. For example, in two empirical studies it was found that when participants thought that they had invested more effort in a task (De Witt Huberts et al., 2012) or were primed to justify discrepant behavior (Taylor et al., 2013, Study 3), they ate more of an unhealthy snack in a subsequent "taste-test" compared to participants in the control condition. An increase in unhealthy food choices was also found when participants recalled a personal achievement compared to the control conditions in which participants recalled either a typical day or an experience that made them happy (thereby ruling out the effect of positive affect; Wilcox, Kramer, & Sen, 2011). These studies aptly illustrate the immediate negative effects of self-licensing on self-regulation of eating behavior, as well as the diversity in types of licenses that are employed to justify indulgence. Notwithstanding the contribution of these studies to establishing self-licensing effects in the domain of eating behavior, they have mainly focused on single decisions (about what to eat or how much

to eat). It remains unclear what happens afterwards, when subsequent self-regulation dilemmas are encountered and sequential decision making takes place.

Few studies have looked beyond the immediate effects of self-licensing on eating behavior. Effron, Monin, and Miller (2013) looked at self-reported diet adherence and intentions to pursue weight loss goals. In this study, dieters who reflected on foregone indulgence (which served as a license) reported less adherence to their diet and weaker intentions to stick to their diet over the course of one week than dieters in the control condition. In a longitudinal study by Taylor et al. (2013, Study 2), participants' intentions to halve their consumption of a self-nominated snack for one month were assessed at baseline, together with self-reported consumption of this snack over the past week. In addition, participants were given a list of different licenses to indulge, and asked to report how often they used each license. At follow-up four weeks later, participants again reported their intake over the past week. The results showed that greater reported self-licensing was associated with greater consumption of the self-nominated unhealthy snack, but only for participants who had strong intentions to cut down on this respective snack. This supports the notion that licenses are mainly employed when a long-term goal is threatened (e.g., Taylor et al., 2013; De Witt Huberts et al., 2014a).

Further insight into more long-term outcomes of self-licensing comes from research on compensatory health beliefs (CHBs). CHBs are beliefs that the negative effects of an unhealthy behavior can be compensated for or "neutralised" by engaging in healthy behavior (Knäuper, Rabiau, Cohen, & Patriciu, 2004; Rabiau, Knäuper, & Miquelon, 2006) and as such constitute a category of licenses for goal disengagement. In a seven-day experience sampling study it was found that holding CHBs and the momentary formation of compensatory intentions were predictive of self-reported caloric intake (Kronick, Auerbach, Stich, & Knäuper, 2011). Furthermore, a prospective study demonstrated that holding diet-specific CHBs was related to lower adherence to self-set dieting rules at two-months follow up, which in turn predicted lower goal attainment in terms of weight loss (Miquelon, Knäuper, & Vallerand, 2012).

Taken together, these studies suggest that self-licensing prohibits successful self-regulation of eating behavior in the long run. However, they do not provide any insight into how self-licensing affects subsequent engagement in self-regulation, when a first dilemma is resolved (choosing French fries over a side salad because "you worked so hard today") and a second dilemma presents itself (having chocolate pudding for dessert or not). This is a pivotal question to further our understanding of self-licensing, as it remains unknown how self-licensing effects unfold over time. A first step towards unraveling this is examining how self-licensing affects sequential decision making.

Self-licensing and goal re-engagement

Although both immediate (De Witt Huberts et al., 2012; Taylor et al., 2013, Study 3; Wilcox et al., 2011) and long-term outcomes of self-licensing (Effron et al., 2013; Taylor et al., 2013, Study 2) show that justifying indulgence leads to unhealthy eating behavior, there are theoretical grounds to suggest that self-licensing may promote goal re-engagement after initial self-regulation failure. To provide an example of this re-engaging effect, without a license the Abstinence Violation Effect (AVE; Marlatt & Gordon, 1980) is likely to occur, which follows from self-blaming attributions after a lapse from abstinence or self-control. This in turn leads to heightened negative affect that promotes escalation of the problematic behavior. In eating behavior literature a similar phenomenon has been documented as the "what the hell effect", when dieters decide it does not matter what they consume that day anymore once they have broken their diet (Polivy & Herman, 1985; see also Muraven, Collins, Morsheimer, Shiffman, & Paty, 2005). However, effects like "what the hell" and AVE can be prevented when individuals engage in self-licensing, as it provides a reason to view the indulgence as an exception (e.g., I ate cake because it is my colleague's birthday) rather than as a personal failure (e.g., I ate cake because I am weak-willed), thereby reducing the risk that dieters abandon their diet goal completely (and thus promoting goal re-engagement). This has been observed in a prospective study where obese dieters were grouped according to how they cognitively appraised diet violations before entering an extensive weight loss treatment program (Smith, O'Neil, & Rhodes, 1999). The group of dieters with a rationalization tendency (i.e., retrospectively making excuses for dietary transgressions) scored higher on treatment completion than the group of dieters with a rigid, dichotomous, all-or-none thinking tendency (i.e., interpreting any violation as complete diet failure).

In contrast, there is also evidence suggesting that self-licensing may prevent goal re-engagement after initial self-regulation failure. For example, several studies show that negative feelings like guilt could actually promote goal re-engagement, by eliciting a desire to "launder" or "balance out" the respective indulgence by subsequently behaving responsibly and in line with long-term goals again, such as by having something healthy after consuming something tasty or indulgent (Rabiau et al., 2006; Ramanathan & Williams, 2007; Baumeister & Heatherton, 1996; Levav & McGraw 2009; Gilovich & Medvec, 1994; Tsiros & Mittal, 2000; Dhar & Simonson, 1999). Following this literature, self-licensing is not desirable in the sense that it prevents "goal promoting" feelings of guilt. In other words, when people do not feel guilty about an initial self-regulation failure (i.e., eating a cookie), because they can justify it by making situational attributions to this failure, they can more easily continue with the behavior (i.e., eating another cookie) as they do not experience

adverse consequences in the form of negative affect. The fact that there was a reason for goal violation in the first place could even foster further goal-inconsistent behavior as this reason could also apply to subsequent decisions (i.e., 'I can have a second cookie, after all it is my birthday').

Evidently, the self-regulatory function of (diminished) negative affect after goal violation remains unclear, thus rendering the conclusion that self-licensing and its affective consequences harms subsequent goal re-engagement prematurely. Surprisingly, while anticipated negative affect has received attention in self-licensing literature as a potential underlying mechanism (e.g., De Witt Huberts et al., 2014a), studies that look at the affective consequences of self-licensing are limited to examinations of expected negative affect resulting from (un)justified decisions (e.g., Connolly & Zeelenberg, 2002) and retrospective estimations of experienced negative affect after indulgent choices with or without a reason (Xu & Schwarz, 2009). Therefore, the actual affective consequences of self-licensing are explicitly addressed in the present studies, to empirically verify that self-licensing leads to lower levels of negative affect after indulgence.

Self-licensing and self-regulatory ability

Another relatively unexplored way in which self-licensing may boost self-regulation is through the maintenance of motivation and feelings of self-efficacy for self-regulation. The importance of looking at self-efficacy is evidenced by studies demonstrating that diet goal violations are associated with diminished self-efficacy. This has been found in correlational studies (Grilo, Shiffmann, & Carter-Campbell, 1994) as well as ecological momentary assessment studies (Carels et al., 2001; Carels, Douglass, Cacciapaglia, & O'Brien, 2004; McKee, Ntoumanis, & Taylor, 2014). Low self-efficacy in turn has been found to predict binges in individuals with binge eating disorder (Carels et al., 2004) and high levels of self-efficacy have been linked to weight loss success (i.e., Glynn & Ruderman, 1986; Kitsantas, 2000; Elfhag & Rössner, 2005). Reliance on justification may enhance or preserve feelings of self-efficacy. That is, excuses can make the goal violation feel less like a failure as it can be interpreted as an exception and attributed to situational rather than personal attributions. A similar line of reasoning is employed in Marlatt and Gordon's (1985) relapse prevention model, where low self-efficacy is identified as an important risk factor for goal violations and AVE. They argued that situational attributions prevent the detrimental effects of goal violations on self-efficacy.

Related to self-efficacy is motivation, which constitutes another important indicator of self-regulatory ability (Baumeister & Vohs, 2007). Self-efficacy beliefs influence

how well individuals motivate themselves and persevere in the face of difficulties (Bandura, 2012), and perceived control (i.e., self-efficacy) has been identified as crucial to the maintenance of motivation and the translation of intentions into action (Sheeran, 2002; Locke & Latham, 1990). The importance of maintaining motivation is also illustrated by the "what the hell effect" (Polivy & Herman, 1985), when individuals' motivation to self-regulate drops when they perceive a (small) diet violation as their diet being ruined, and subsequently stop monitoring what they eat. In such cases, self-licensing may help to maintain motivation, either through preserving self-efficacy or directly by providing situational attributions.

In sum, self-licensing may attenuate the damaging effect of self-regulation failure on feelings of self-efficacy and motivation. Therefore, the perceptions of either improved or impaired self-regulation ability are examined in the present research, by looking at diet self-efficacy and diet motivation after indulging with or without a license.

The Present Research

The present studies were designed to complement the current literature by looking at how self-licensing processes affect how people respond to a subsequent self-regulation dilemma. A vignette study method was employed to present participants with a scenario in which they encountered a second self-regulation dilemma after having made an indulgent choice. Vignettes have been used previously to study variables in very specific and controlled settings (Koo & Fishbach, 2008, Studies 1-3; Graziano, Habashi, Sheese, & Tobin, 2007; Novemsky & Dhar, 2005; Zemack-Rugar, Corus, & Brinberg, 2012), such as the present studies that require a sequence of specific events to take place (responding with indulgence in a first dilemma, experiencing a second dilemma), under certain conditions (being on a diet) that are hard to simulate in a lab setting. Still, to control for potential limitations of this method, participants were explicitly asked about their capacity to imagine themselves in the described situation. Also, as participants were told that they were on a diet, two additional precautions were taken to make sure that participants could relate to this: We assessed how concerned participants are with their own eating behavior and only female participants were included in the studies, as women are in general more concerned about their body weight than are men (Grabe, Ward, & Hyde, 2008). With respect to the affective consequences of self-licensing, it was hypothesized that the availability (vs. absence) of a license for an indulgent choice results in decreased negative affect. With regard to the main variable of interest, likelihood of making a second indulgent choice, no specific hypothesis was formulated, as this likelihood can theoretically

increase or decrease. This theory-driven exploration also applies to the assessment of diet motivation and diet self-efficacy, which are addressed in Study 2.

Study 1

Method

Participants. A total of 67 participants completed the vignette survey through Amazon's Mechanical Turk (MTurk). Fifteen of these participants were excluded from the analyses because they had either participated in a similar vignette study before (n = 5);[1] were male (n = 6);[2] or were unable to sufficiently imagine themselves in the situation described (n = 4; see Measures). This resulted in a final sample of 52 female participants, with a mean age of 31.08 (SD = 9.11) and a mean BMI of 25.75 (SD = 7.76).

Design and procedure. The present study employed an independent groups one-factor design, with self-reported likelihood of making a second indulgent choice as main dependent variable. Participants were recruited through MTurk, an open online marketplace which can be used for web-based data-collection (Buhrmeister, Kwang, & Gosling, 2011). MTurk "workers" were invited to participate in a short survey about how women respond to specific situations, in return for $0.25. Workers who agreed to participate were redirected to an online survey, where they were randomly assigned to the license (n = 25) or control (no license) condition (n = 27). After participants gave informed consent, the study started with an assessment of demographics and eating concerns. Participants then received detailed instructions, emphasizing the importance of trying to really imagine themselves in the situation described. This was followed by the vignette itself, describing how the protagonist wants to lose weight to fit into a dress for a friend's upcoming wedding, but decides to buy a piece of chocolate pie at the local bakery. In the license condition, this decision was preceded by a license, i.e., an excuse to justify the indulgent choice (see Manipulation). In the control condition, no license was provided. Next, participants were asked how justified they found this choice (manipulation check) and how guilty they felt about this choice (affective consequence). Then a subsequent self-regulation dilemma was presented: While waiting in line to pay for the chocolate pie, the participant sees another tempting treat (i.e., sausage croissant rolls).

[1] MTurk does not provide an option to exclude workers based on assignments (e.g., surveys) they have done before. Therefore, it was only possible to check this afterwards.

[2] MTurk does not provide the option to only allow females to participate. Although the description stated that only females could participate, a number of male participants completed the survey.

Participants were asked to report how likely they were to also buy the sausage croissant rolls, which served as the main outcome measure. Subsequently, control questions were administered to assess whether participants could sufficiently imagine themselves in this kind of situation. Lastly, participants provided their height and weight. After completing the survey, participants were thanked and provided with a code to receive $0.25 on their MTurk worker account.

License manipulation. The license provided in the experimental condition was that this was the only opportunity to buy a piece of the chocolate pie, as it was only sold on that day to celebrate the bakery's 10-year anniversary. This was expected to be an appealing justification as it frames the situation as being "a special occasion", as well as a one-time opportunity, both allowing the protagonist to indulge "just this once" (Taylor et al., 2013; see also Verhoeven, Adriaanse, De Vet, Fennis, & De Ridder, 2015). To strengthen the liveliness of the vignette and to reinforce the justifiableness of the indulgent choice, participants were told that they said to themselves to just enjoy the pie before they take up their diet tomorrow. This future intention to restrict food intake can also serve as a license to indulge in soon-to-be-forbidden foods (Urbszat, Herman, & Polivy, 2002; Knäuper et al., 2004).

Measures. All answers (demographics excluded) were given on a visual analogue (VAS) scale ranging from 0 (*Not at all*) to 100 (*Very much*).

Demographics. Participants were asked to report their gender (see Note 2), age, profession, work hours per week, and household composition.[3]

Eating concerns. Three items assessed eating concerns: 'Do you watch your weight?', 'Do you watch what you eat in order to lose weight or to not gain weight?', and 'Do you watch what you eat for your general health?'. A mean score was computed (α = .84), which served as a potential control variable.

Justifiableness. One item was administered to assess how justified participants perceived the decision to indulge, which served as a manipulation check: 'How justified do you find your choice to buy the piece of chocolate pie?'.

Negative affect: Guilt. To assess the affective consequences, one item was administered to see how guilty participants felt about the decision to indulge: 'How guilty do you feel about your choice to buy the piece of chocolate pie?'.

[3] Profession, work hours per week, and household composition were assessed to check for sufficient diversity within the sample. As this was the case, these are not further reported on in the results.

Likelihood of second indulgent choice. As in index of how having made an indulgent choice with a license affects a second self-regulation dilemma, participants were asked. 'How likely is it that you will buy a piece of chocolate pie and the sausage croissant rolls?'.

Control variables. Three items were administered to control for participants' capacity to imagine themselves in the situation described: 'How well were you able to imagine yourself in the situation?', 'How well were you able to reflect on your feelings and thoughts?', and 'To what degree is this a situation that you could actually experience?'. Participants who scored lower than 70 on all three control variables were removed from further analyses.

Body Mass Index (BMI). Participants' BMI was calculated using their reported weight and height. BMI served as a potential control variable.

Results

Randomisation check. An ANOVA was performed with condition (License: yes vs. no) as independent variable and age, BMI, eating concerns, and the control variables as dependent variables, indicating successful randomisation (all *p*s > .111).

Manipulation check. An ANOVA with condition (License: yes vs. no) as independent variable and perceived justifiableness as dependent variable revealed that participants in the license condition perceived the indulgent choice as more justified (M = 63.72, SD = 26.11) than participants in the control condition (M = 30.89, SD = 31.83), $F(1, 50) = 16.38$, $p < .001$, $\eta^2 = .25$.

Affective consequences.

Correlations. Pearson correlation coefficients were computed to assess potential associations between the dependent variable feelings of guilt and age, BMI, and eating concerns. A significant association was found between feelings of guilt and eating concerns ($r = .28$, $p = .047$).

Main analysis. An ANCOVA with condition (License: yes vs. no) as independent variable, eating concerns as a covariate, and feelings of guilt as dependent variable revealed that participants in the license condition felt less guilty about the choice to indulge (M = 56.56, SD = 32.42) than participants in the control condition (M = 76.30, SD = 24.12), $F(2, 49) = 7.20$, $p = .010$, partial $\eta^2 = .13$.

Likelihood of second indulgent choice.

Correlations. Pearson correlation coefficients were computed to assess potential associations between the dependent variable (i.e., likelihood of second indulgent choice) and age, BMI, and eating concerns. No significant associations were found (all *p*s > .477).

Main analysis. An ANOVA was performed with condition (License: yes vs. no) as independent variable and the self-reported likelihood of a second indulgent choice (i.e., also buying the croissant sausage rolls) as dependent variable. Participants in the experimental condition reported being more likely to make a second indulgent choice ($M = 46.68$, $SD = 34.61$) compared to participants in the control condition ($M = 27.41$, $SD = 29.68$), $F(1, 50) = 4.67$, $p = .036$, $\eta^2 = .09$.

Discussion

As expected, when participants were provided with a license, they perceived the decision to buy a piece of chocolate pie as more justified and they also felt less guilty about this indulgent decision compared to participants without a license. More importantly, the results show that participants who received a license were subsequently more likely to indulge again, by also buying another treat. This finding suggests that having a license for a first indulgent choice negatively affects people's ability to effectively deal with a second self-regulation dilemma. However, a limitation of the current vignette is that it presents this second dilemma in the same situation (i.e., the bakery) with only minimal time between the two decisions, which may have induced the perception of making a simultaneous choice rather than a sequential choice. Therefore, in Study 2 the second dilemma is also presented in a new situation (i.e., grocery store), thereby adding a second factor to the design. Furthermore, as the license in Study 1 was actually two-fold, of which one is generalizable to indulge in other unhealthy foods as well (i.e., 'I will pick up my diet tomorrow'), only the license that exclusively applies to the first dilemma (i.e., 'the chocolate pie is only available today') was presented. In that way, it is possible to disentangle the effects of having a general license versus an exclusive license. In addition, a more elaborate examination of the affective consequences was performed by also looking at feelings of regret and shame in addition to feelings of guilt. These have been identified as negative emotions that can arise in response to indulgent choices (Ramanathan & Williams, 2007). Also, in addition to self-reported likelihood of making a second indulgent choice, participants' self-reported diet motivation and diet self-efficacy was assessed as a proxy of their self-regulatory ability after indulging with or without a license.

Study 2

Method

Participants. A total of 180 participants completed the vignette survey through MTurk. Eight participants were removed due to not being able to sufficiently imagine themselves in the situation described (see Measures Study 1) and six participants because they did not read the vignette properly (reading time < 15 seconds).[4] This resulted in a final sample of 166 female participants, with a mean age of 36.55 (*SD* = 12.20) and a mean BMI of 29.19 (*SD* = 7.47).

Design and procedure. The present study employed a 2 (License: yes vs. no) x 2 (Situation second dilemma: same vs. new) between-subjects factorial design, with self-reported likelihood of making a second indulgent choice as main dependent variable. A similar procedure as in Study 1 was employed: MTurk workers were invited to participate in a short survey in return for $0.25. Workers who agreed to participate were redirected to an online survey, where they were randomly assigned to one of the four conditions (License: yes, Situation: same, n = 41; License: yes, Situation: new, n = 43; License: no, Situation: same, n = 38, License: no, Situation: new, n = 44). After participants gave informed consent, the survey started with an assessment of demographics and eating concerns. This was followed by the vignette itself, in which the presence or absence of a license to buy a piece of chocolate pie was manipulated. Next, justifiableness was assessed as a manipulation check and participants were asked to report how much guilt, shame, and regret they felt in relation to the indulgent choice. Then two different subsequent self-regulation dilemmas were presented. In the first scenario, as a replication of Study 1, participants were asked to report how likely they were to also buy the sausage croissant rolls that they spotted while waiting in line at the bakery (i.e., same situation). In the second scenario, participants were told that after buying the piece of chocolate pie they went on to the grocery store (i.e., new situation) where there was a plate full of one-bite croissant sausage rolls for customers to taste. Participants who read this scenario were subsequently asked to report how likely they were to try the free-sample sausage croissant rolls. Thus, importantly, participants had bought but not consumed the chocolate pie, meaning that

[4] Based on advanced experience with using MTurk, participants' vignette reading time was measured (in a way that was invisible to participants) to exclude outliers that indicated insufficient adherence to the instruction to read the vignette carefully. The cut-off point of 15 seconds was based on the distribution of reading times per condition. In the first condition three outliers were identified (4.22, 7.04 and 10.76 seconds). For each of the remaining conditions, we decided to exclude the lowest reading time, as in both conditions 2 and 4 the lowest reading times were not even 3 seconds (2.94 and 2.29, respectively). To be consistent, we then also excluded the lowest reading time in condition 3, which was 14.44 seconds. This resulted in the cut-off point of 15 seconds.

just purchasing chocolate pie made for an indulgent choice. Then, participants' perceived self-regulatory ability (diet motivation and self-efficacy) was measured. Subsequently, control questions were administered to assess whether participants could sufficiently imagine themselves in this kind of situation. Lastly, participants provided their height and weight. After completing the survey, participants were thanked and provided with a code to receive $0.25 on their MTurk worker account.

License manipulation. The license provided for the piece of chocolate pie was similar to the license used in Study 1, except that the license was now only about the chocolate pie being "a special occasion" and a one-time opportunity, and not about "picking up one's diet tomorrow".

Measures. Similar measures were used as in Study 1. Additional measures are reported below. All answers were given on a visual analogue (VAS) scale ranging from 0 (*Not at all*) to 100 (*Very much*).

Negative affect: Regret and shame. To assess the affective consequences of self-licensing, in addition to guilt, one item was administered to assess how much participants regretted the decision to indulge: 'How much do you regret your choice to buy the piece of chocolate pie?'. Another item was administered to assess how ashamed participants felt about the decision to indulge: 'How ashamed do you feel about your choice to buy the piece of chocolate pie?'.

Likelihood of second indulgent choice. As an index of how having made an indulgent choice with a license affects a second self-regulation dilemma, participants were asked, 'How likely is it that you will buy the croissant sausage rolls?' in the first scenario (i.e., same situation), or 'How likely is it that you have a taste of the croissant sausage rolls?' in the second scenario (i.e., new situation).[5]

Perceived self-regulatory ability. Participants' motivation and feelings of self-efficacy with respect to their weight loss goal were measured as an index of perceived self-regulatory ability. Eighteen items assessed how the participants felt after indulging in the chocolate pie, when they started to think about their goal to lose some weight again. A principal component analysis (PCA) was performed to verify whether the factors motivation and self-efficacy could be extracted from these 18 items. The suitability of

[5] To deal with the great number of (extreme) outliers on the dependent variable "likelihood of second indulgent choice", a square root transformation was performed on this variable, thereby reducing the number of outliers to 1. For clarity, the untransformed means and standard deviations are reported, with the exception of the graphical display in Figure 1.

PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.4. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.88 with individual KMO measures all greater than 0.8, "meritorious" classifications according to Kaiser (1974). Bartlett's test of sphericity was statistically significant ($p < .001$), indicating that the data were fit for PCA. PCA with oblique rotation revealed four components that had eigenvalues greater than one and which explained 36.35%, 24.37%, 7.66%, and 6.03% of the total variance, respectively. Visual inspection of the scree plot indicated that two components should be retained (Cattell, 1966). In addition, a two-component solution met the interpretability criterion. As such, two components were retained. The two-component solution explained 60.72% of the total variance. The interpretation of the data was consistent with the indices of self-regulatory ability the items were designed to measure with strong loadings of self-efficacy items on Component 1 (all loadings > .51), and motivation items on Component 2 (all loadings > .70).

Mean scores were computed for each factor, and the Pearson correlation coefficient obtained revealed that the factors were uncorrelated, $r = .09$, $p = .270$. Eleven items assessed self-efficacy ($\alpha = .91$) and example items are: 'To what degree do you feel in control over your eating behavior?' and 'How hard will it be to reach your goal weight before the wedding?' (reversed item). Seven items assessed motivation ($\alpha = .89$) and example items are, 'How motivated are you to reach your goal weight' and 'To what degree do you make losing weight your top priority?'.

Results

Randomization check. An ANOVA was performed with condition as independent variable and age, BMI, eating concerns, and the control variables as dependent variables, indicating successful randomization (all *p*s > .380).

Manipulation check. An ANOVA with the factor License (yes vs. no) as independent variable and perceived justifiableness as dependent variable revealed that participants in the license condition perceived the indulgent choice as more justified ($M = 44.83$, $SD = 32.89$) than participants in the control condition ($M = 20.48$, $SD = 23.05$), $F(1, 164) = 30.40$, $p < .001$, $\eta^2 = .16$.

Affective consequences.

Correlations. Pearson correlation coefficients were computed to assess potential associations between the dependent variables (feelings of guilt, shame, and regret) and age, BMI, and eating concerns. A significant association was found between feelings of guilt and eating concerns ($r = .20$, $p = .010$) and between feelings of regret and eating concerns ($r = .28$, $p < .001$). A marginally significant association was found between feelings of shame and BMI ($r = .15$, $p = .061$).

Main analysis. A MANOVA was performed with the factor License (yes vs. no) as independent variable and guilt, shame, and regret as dependent variables. There was a significant multivariate effect, $F(3, 162) = 6.41$, $p < .001$, partial $\eta^2 = .11$. At the univariate level this effect was significant for all dependent variables (including the respective covariates): Participants in the license condition felt less guilty about the choice to indulge ($M = 65.70$, $SD = 34.60$) than participants in the control condition ($M = 80.26$, $SD = 25.07$), $F(2, 163) = 8.52$, $p = .004$, partial $\eta^2 = .05$. In addition, participants in the license condition felt less regret about the choice to indulge ($M = 58.96$, $SD = 35.58$) than participants in the control condition ($M = 79.85$, $SD = 25.77$), $F(2, 163) = 17.19$, $p < .001$, partial $\eta^2 = .10$. Also, participants in the license condition felt less shame about the choice to indulge ($M = 47.01$, $SD = 37.51$) than participants in the control condition ($M = 63.30$, $SD = 33.60$), $F(1, 164) = 8.68$, $p = .004$, $\eta^2 = .05$. Including the marginally significant covariate resulted in a similar outcome, $F(2, 163) = 9.70$, $p = .002$, partial $\eta^2 = .06$.

Likelihood of second indulgent choice.

Correlations. Pearson correlation coefficients were computed to assess potential associations between the dependent variable "likelihood of second indulgent choice" and age, BMI, and eating concerns. No significant associations were found (all *p*s > .137).

Main analysis. A 2 x 2 factorial ANOVA was performed with License and Situation as independent variables and the self-reported likelihood of a second indulgent choice as dependent variable. A marginally significant main effect of Situation was found, $F(3, 162) = 3.78$, $p = .054$, partial $\eta^2 = .02$. Participants who read about a second dilemma in a new situation were more likely to indulge again ($M = 22.97$, $SD = 34.30$) than participants who read about a second dilemma in the same situation ($M = 12.52$, $SD = 21.99$). There was no significant main effect of License, $F(3, 162) = .22$, $p = .638$, but a significant interaction was found between License and Situation in affecting the likelihood of a second indulgent choice, $F(3, 162) = 6.42$, $p = .012$, partial $\eta^2 = .04$. Simple effects analyses revealed that

when participants were presented with the second dilemma in the same situation, they were more likely to indulge when a license was available (M = 17.72, SD = 26.23) compared to when a license was not available (M = 6.92, SD = 14.62), p = .040. When participants were presented with the second dilemma in a new situation, there was no difference in the likelihood of indulging depending on the availability of a license, p = .137 (see Figure 1). Simple effects analyses also showed that when participants were provided with a license no difference was found between the same and the new situation, p = .675 When participants were not provided with a license, participants were more likely to indulge in a new situation (M = 26.73, SD = 35.11) than in the same situation (M = 6.92, SD = 14.62), p = .002.

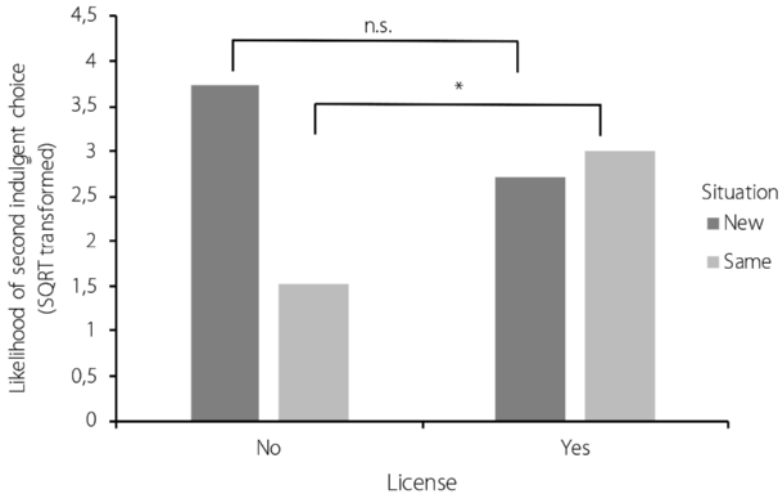

Figure 1. Interaction between License (yes vs. no) and Situation (new vs. same) in affecting the likelihood of a second indulgent choice.

Perceived self-regulatory ability.

Correlations. Pearson correlation coefficients were computed to assess potential associations between age, BMI, and eating concerns and the dependent variables motivation and self-efficacy. Self-efficacy was associated with age, r = .16, p = .039, and BMI, r = .21, p = .007. Motivation was associated with eating concerns, r = .29, p < .001. These variables were included as control variables in the following analyses.

Main analysis motivation. A 2 x 2 factorial ANOVA was performed with License and Situation as independent variables, eating concerns as control variable, and motivation as dependent variable. No significant main effects or interaction effect were found, all ps > .207.

Main analysis self-efficacy. A 2 x 2 factorial ANOVA was performed with License and Situation as independent variables, age and BMI as control variables, and self-efficacy as dependent variable. No significant main effect of Situation or interaction effect between License and Situation in affecting self-efficacy were found, both *p*s > .415. A marginally significant main effect of License was found, $F(5, 158) = 3.80$, $p = .053$, partial $\eta^2 = .02$. Participants who were presented with a license to indulge reported higher levels of self-efficacy ($M = 49.05$, $SD = 20.03$) than participants who were not presented with a license to indulge ($M = 43.94$, $SD = 19.60$).

Discussion

The findings of Study 1 were replicated: When participants encountered the second dilemma in the same situation, they were more likely to opt for indulgence when a license was available as opposed to unavailable. In a new situation, however, the likelihood of indulging again was unaffected by the availability of a license. Diet motivation was not affected by the license or the situation in which the second dilemma was presented, but some indication was found that diet self-efficacy was better maintained when the indulgence was preceded by a license independent of the situation. With respect to the affective consequences, in addition to lower feelings of guilt, as was also found in the first study, having a license for indulgence also appeared to result in diminished feelings of shame and regret.

General Discussion

The present studies examined the effects of self-licensing in a subsequent self-regulation dilemma. The affective consequences, the likelihood of making a second indulgent choice, and perceived self-regulatory ability were assessed to provide insight into whether self-licensing undermines or supports goal reengagement after an initial indulgent choice. First, it was confirmed that the availability (vs. absence) of a license for an indulgent choice results in less feelings of guilt (Studies 1 and 2), as well as less shame and regret (Study 2). Second, in both studies it was found that having made an indulgent choice with a license (vs. without a license) makes it more likely that a second opportunity to indulge is opted for as well when this opportunity is presented in the same situation. In a new situation, the (un)availability of a license did not affect how participants responded to a subsequent self-regulation dilemma. Third, there was a trend for participants who

received a license for the first indulgent choice to report higher levels of self-efficacy, whereas motivation remained unaffected by license availability.

The current findings on the affective consequences complement earlier studies by showing that having a license not only reduces anticipated feelings of guilt before indulgence (Khan & Dhar, 2006, Study 3; Kivetz & Zheng, 2006), but also results in lower levels of guilt, shame, and regret after having made an indulgent choice. This is also in line with predictions that follow from AVE (Marlatt & Gordon, 1980). Moreover, it was verified that a license indeed results in higher perceived justifiableness of the indulgence. Hitherto, no studies have explicitly assessed this, as it is mostly inferred from behavioral outcome measures (e.g., De Witt Huberts et al., 2012; Taylor et al., 2013; Wilcox et al., 2011).

More importantly, the current studies are the first to provide evidence regarding the role of self-licensing in dealing with subsequent self-regulation dilemmas, thereby adding to studies focusing on immediate effects (De Witt Huberts et al., 2012; Wilcox et al., 2011) and longitudinal studies (Effron et al., 2013; Taylor et al., 2013; Kronick et al., 2011; Miquelon et al., 2012). Based on the present findings, it seems that self-licensing negatively affects goal re-engagement in the same situation, but also has positive effects in terms of maintaining or increasing feelings of self-efficacy.

Looking at Study 1, the higher tendency to indulge again when a license was provided could have been the result of a highlighting process (Dhar & Simonson, 1999). That is, the given general license (i.e., 'I will pick up my diet tomorrow') may have highlighted the goal to indulge in soon-to-be-forbidden foods, which then guided the subsequent choice. Without this goal provided by the license, chances are higher that the two subsequent decisions are viewed separately, which has been found to promote a balancing strategy (i.e., employing a compensatory approach; Dhar & Simonson, 1999). Yet the exclusive license in Study 2 (i.e., 'the chocolate pie is only available today') also leads to a higher likelihood of buying another treat. Hence, a more plausible explanation is that as both treats were purchased simultaneously, the threshold to add another treat to this purchase was lower than when the second treat was presented on a separate occasion, which more explicitly separates the subsequent decisions into two consecutive events. Thus, additional research is needed to further examine this interplay between self-licensing and situational factors in affecting goal re-engagement.

An interesting finding was that participants without a license were more likely to indulge again when the dilemma was presented in the new situation. It could be argued that the unhealthy treats were offered as free samples to taste and were presented in a different quantity (i.e., one-bite size), thereby functioning as additional (new) licenses to indulge. However, it then remains questionable why this effect was not found for participants who were provided with a license. Another account for this finding is that it

illustrates self-licensing preventing the "what the hell effect" (Polivy & Herman, 1985; see also Muraven et al., 2005). Participants without a license might have decided that it did not matter what they consumed anymore once they had broken their diet, as they had already experienced negative affect. Obviously, these is a potential underlying mechanism that warrants further research to be empirically verified. With the current vignette design, it was not feasible to test whether the negative affective consequences mediated between the (un)availability of a license and the likelihood of making a second indulgent choice. Testing this mediation model is a recommended route for future studies.

The finding that self-efficacy was maintained or even increased when a license for indulgence was provided gives valuable insight into the potential adaptive qualities of self-licensing. It reveals a way in which self-licensing may be an adaptive self-regulation strategy, as is also postulated by Marlatt and Gordon's relapse prevention model (1985). Surprisingly, whereas it was expected that diet self-efficacy and motivation would be related factors, no association was found between these two indices of self-regulatory ability. Also, diet motivation appeared to be unaffected by license availability. This could be an artifact of our procedure, in which participants were provided with a specific motivation to diet (i.e., losing weight to fit into a dress for an upcoming wedding), perhaps keeping motivation high in spite of failure. In contrast to motivation, diet self-efficacy was not referred to in the vignette and hence left more room for participants' own projection, potentially explaining the absence of an association between the two.

Further research is needed to deal with limitations of the present studies. First and foremost are the limitations of using a vignette design, that relies on self-report and the imaginative abilities of participants. This may account for the small to medium effect size that was found for the likelihood of making a second indulgent choice in Study 2, although the effect was of a medium to large magnitude in Study 1. In addition, it could be argued that strictly speaking the cross-sectional design employed does not allow for interpreting the effects in terms of "subsequent". Also, the present studies focused on the effects of making an indulgent choice with or without a license, and not on what happens after actual indulgence, i.e., eating the chocolate pie. Hence, replication studies that manipulate actual indulgence through self-licensing and include behavioral outcome measures would greatly strengthen the current findings. Nonetheless, the obvious shortcomings of using vignettes are to some extent offset by the controlled sequence of events that they can present, as well as the conditions that necessitate justifying indulgence (i.e., being on a diet). The scenarios described were carefully formulated and closely resembled real-life situations, and precautions were taken to minimize the impact of potential insufficient imaginative capabilities of participants. Importantly, the mere value of using vignettes in the present study—despite its obvious limitations—was to set

the stage for research on self-licensing in sequential decision making, rather than studying it as a single behavior in a vacuum.

Another issue that should be addressed is the BMI of the participants in the current studies. Whereas the first study consisted of participants that were borderline slightly overweight (i.e., BMI > 25), for the second study this was borderline moderate obesity (i.e., BMI > 30). On the one hand, this has implications for the generalizability of the present findings; on the other hand it could be argued that these samples are actually representative of the population of interest. That is, the practical implications of extending our understanding of this route to self-regulation failure primarily converge in new avenues for the development of effective strategies for dealing with the rising numbers of people with overweight and obesity (Taylor et al., 2014).

As yet it remains unclear whether interventions should focus on strategies that either support or counteract self-licensing processes. The present set of studies provides preliminary evidence suggesting that self-licensing is unfavorable when dilemmas are encountered in one situation, while it seems to be adaptive in the sense that it may protect feelings of control over one's eating behavior after indulgence. On a related note, it seems reasonable to assume that complete self-control over one's eating behavior is not feasible and perhaps even undesirable. Many popular diets already acknowledge the need to eat freely every once in a while by incorporating "slacking-off" days into the diet regime, based on the underlying idea that this replenishes dieters' strength to follow their diet again. It could be that when the underlying motive of allowing oneself a treat is to serve the long-term goal ('I indulge a little every now and then to prevent losing complete control and overeating at some point'), self-licensing can be an adaptive self-regulation strategy. Also, a pivotal factor in identifying who benefits from self-licensing may be how diet violations are responded to, in terms of self-blame and self-efficacy. When diet violations are predominantly determined by negative affect and low self-efficacy, it could be helpful to justify dietary transgressions to some extent, thereby preventing further derailment. Hence, an important avenue for future research is to identify under what conditions self-licensing is a harmful or beneficial self-regulation strategy.

In conclusion, there is broad evidence for the detrimental effects of self-licensing on healthy eating behavior. The present studies align with these studies and show that having made one indulgent choice with a license (vs. without a license) makes a second indulgent choice more likely. Additional research on the aftermath of self-licensing is mandatory to further unravel in what ways self-licensing can hinder or support goal (re-) engagement.

4

Does self-licensing benefit self-regulation over time?

An ecological momentary assessment study of food temptations

Prinsen, S., Evers, C., Wijngaards, L., Van Vliet, R. L. & De Ridder, D. T. D. (2018). Does self-licensing benefit self-regulation over time? An ecological momentary assessment study of food temptations. *Personality and Social Psychology Bulletin, 44*, 914-927.

Acknowledgement of author contributions:
SP, CE, and DR conceptualized the research idea. SP developed the research design in consultation with CE, LW, RV, and DR. SP and RV collected the data. SP analyzed the data and interpreted the data in consultation with LW. SP drafted the manuscript. CE and DR provided critical feedback on the manuscript. SP revised the manuscript in consultation with CE and DR. DR provided final approval of the version to be published.

Abstract

Self-licensing, employing reasons to justify indulgence, may help resolve the conflict between immediate temptations and long-term goals in favor of the former. It was hypothesized that this conflict-resolving potential of self-licensing may benefit self-regulation over time. With a momentary assessment design, we examined how self-licensing affects self-regulatory ability and the capacity to deal with subsequent self-regulatory conflicts. One hundred thirty-six female participants filled out surveys eight times per day for one week. Food temptation strength, conflict, resistance, and enactment were assessed, as well as license opportunity and perceived self-regulatory ability. When self-licensing opportunity was high (vs. low), a weaker association between temptation strength and conflict was observed. High license opportunity was associated with higher perceived self-regulatory ability for instances of low degrees of temptation enactment and predicted better handling of subsequent conflict after high degrees of prior temptation enactment. These results suggest that self-licensing can support self-regulation after initial failure.

Resisting food temptations can be quite a challenge. Take Suzie, for example, a self-proclaimed chocolate addict who has decided to cut down on her favorite treat to lose a few pounds. At the office, she finds herself able to stay away from the communal chocolate chip cookie jar, but things go wrong when her colleague offers her a piece of delicious chocolate cake. Realizing that enjoying this cake would mean violating her self-imposed chocolate restriction, but simultaneously feeling a strong desire to eat it, she vigorously starts searching for reasons that would allow her to have a piece. 'It would be impolite to say no', she says to herself. 'Perhaps it is even good to have one last chocolate treat before completely restricting myself', she thinks while her colleague cuts a piece of cake for her. So, despite her good intentions, there she is having a chocolate fix.

Suzie's case is a typical illustration of self-licensing. Self-licensing occurs when people rely on justifications to allow themselves to give in to temptations that violate their long-term goals and has been defined as "the act of making excuses for one's discrepant behavior before actual enactment, such that the prospective failure is made acceptable for oneself" (De Witt Huberts, Evers, & De Ridder, 2014a, p. 121). Hence, reasoned processes that are typically associated with self-regulation success (e.g., Hofmann, Friese, & Wiers, 2008; Strack & Deutsch, 2004) can be employed to justify behaviors that would otherwise be perceived as failure (generally conceptualized as the inability to align one's behavior with long-term goals; Baumeister & Heatherton, 1996). Self-licensing may thus resolve the self-regulatory conflict between short-term "want" (indulge in forbidden foods) and long-term "should" (weight control) goals, in favor of the immediately gratifying option. Accordingly, empirical studies have shown that self-licensing leads to behaviors representative of self-regulation failure, like an increase in unhealthy food intake (e.g., De Witt Huberts, Evers, & De Ridder, 2012; Taylor, Webb, & Sheeran, 2013) or unhealthy food choices (e.g., Weibel, Messner, & Brügger, 2014; Wilcox, Kramer, & Sen, 2011), as well as a higher preference for luxury over necessity goods (e.g., Khan & Dhar, 2006; Kivetz & Zheng, 2006) and displays of immoral behavior (e.g., Mazar & Zhong, 2010; Monin & Miller, 2001).

Such outcomes demonstrate that self-licensing promotes self-regulation failure and suggest that self-licensing should be prevented. However, by focusing on a single act of self-licensing and the ensuing failure, thereby ignoring the temporal dynamics, potentially beneficial (secondary) effects resulting from self-licensing processes may be overlooked. Specifically, the observation that self-licensing leads to resolution of self-regulatory conflict, albeit to the advantage of the temptation, may imply that self-perceptions of being an effective self-regulator are protected. That is, through self-licensing, a goal violation is perceived as more justified (Prinsen, Evers, & De Ridder, 2016), and presumably experienced less as failure. Importantly, this may in turn influence how subsequent temptations are handled. Yet only little is known about these consequences,

as well as the underlying mechanism that is expected to contribute to these outcomes. Therefore, the present momentary assessment study consecutively examined (a) the proposition that self-licensing (partly) resolves self-regulatory conflict (Note: In the remainder of this article, goal conflict resolution refers to resolution in favor of immediate gratification), (b) the effects of self-licensing on perceived self-regulatory ability, and (c) self-licensing effects in sequential temptation enactment. In the following, these research aims are further elaborated upon.

Conflict-resolving qualities of self-licensing

In the literature, the general view of the mechanism underlying self-licensing is that self-licensing (partly) resolves the conflict between competing goals (e.g., De Witt Huberts et al., 2014a; 2014b; Taylor et al., 2013). The aforementioned definition of self-licensing already implies that the mental conflict that arises when thinking about pursuing the discrepant "want" goal can be decreased by employing justifications, as then actual enactment of this goal becomes "acceptable" (De Witt Huberts et al., 2014b). However, despite the sound theoretical basis of the conflict-resolving qualities of self-licensing, no empirical studies have directly examined this process that is expected to underlie self-licensing effects.

Self-regulatory conflict plays a pivotal role in successfully pursing long-term goals, like getting a degree, saving money, or losing weight. More specifically, the identification of conflict is a prerequisite for self-control effort to be exerted (Gillebaart & De Ridder, 2015; Myrseth & Fishbach, 2009). Self-licensing has the potential to resolve this conflict in favor of the tempting option, by lowering the perception that the temptation threatens successful goal pursuit. Thereby, the need for activating self-control strategies is attenuated. Suzie, for example, experiences reduced conflict when she believes that the chocolate cake will be her last chocolate indulgence, as this one piece will not seriously harm the attainment of her weight loss goal. Hence, resolving conflict through self-licensing diminishes the opportunity to successfully self-regulate, by (partly) taking away the need to do so.

Self-regulatory conflict is not only determined by the mere presence or absence of a temptation but also by the relative strength of the temptation. That is, conflict is more easily identified when the strength of a temptation is high. Accordingly, strong (food) temptations are more effective in activating long-term goals (Fishbach, Friedman, & Kruglanski, 2003) and instigating self-control processes (Kroese, Evers, & De Ridder, 2013) than weak temptations. At the same time, it has been found that strong temptations are

more effective in activating self-licensing processes as the strength represents the urge to enact the temptation (De Witt Huberts et al., 2014b). So, whereas normally conflict is expected to increase when temptations become stronger, this is probably not the case when self-licensing comes into play. Then, instead of strong temptations evoking increased conflict, self-licensing helps downplay perceived conflict especially for those temptations that are desired most. Therefore, the present study takes temptation strength into account when testing the conflict-resolving qualities of self-licensing.

Self-licensing and perceived self-regulatory ability

The conflict-resolving qualities that are suggested to underlie self-licensing effects on initial moments of failure may change how this succumbing to temptation affects one's perceived self-regulatory ability. Going back to Suzie, she may feel better able to control her chocolate cravings when she perceives accepting a piece of chocolate cake as an exception, as "a last chocolate treat", than when she sees it as failing to restrict her chocolate intake. Similarly, by making external attributions ('It is my colleague's birthday, it would be rude to not have cake'), rather than internal attributions ('I have no willpower'), feelings of failure can be attenuated (Marlatt & Gordon, 1980).

Importantly, this secondary effect pertaining to how goal violations are incorporated into one's self-perceptions, may point to a positive side of self-licensing. Indeed, a recent vignette study showed that when participants imagined themselves in a situation where they violated their diet with a license, they subsequently reported higher feelings of self-efficacy than participants who did not have a license for this transgression (Prinsen et al., 2016). This finding supports our proposition that self-licensing helps maintain or may even increase perceived self-regulatory ability because it determines how self-regulation "failure" is interpreted. In the present study, self-regulatory ability is conceptualized not only as perceptions of self-efficacy and motivation (see Prinsen et al., 2016) but also as feelings of control over one's behavior (Conner, Norman, & Bell, 2002) and the importance of a particular self-regulatory goal (Locke & Latham, 1990). In general, such self-perceptions have been linked to self-regulatory success (Nguyen & Polivy, 2014) and, hence, comprise an important outcome when studying the secondary effects of self-licensing.

Altogether, the literature discussed above points toward beneficial secondary effects of self-licensing as it may (partly) resolve ongoing self-regulatory conflict and safeguard perceived self-regulatory ability despite having given in to temptation. Evidently, the next question is whether these potential beneficial effects of self-licensing

also translate into beneficial behavior, thus, by promoting the successful handling of subsequent self-regulatory conflicts.

Self-licensing and sequential temptation enactment

A central question when looking at sequential temptation enactment, as in a series of indulgent choices, is whether an initial justified indulgence makes a subsequent act of failure more or less likely than an initial unjustified indulgence. At first sight, it might be expected that a prior justified indulgence makes subsequent failure more likely. After all, a license for a first indulgence can simply be used again for a second indulgence. Evidence for this scenario has been found in a vignette study (Prinsen et al., 2016), where participants were more likely to buy a second unhealthy food item after they decided to buy a chocolate cake when this former decision was presented as being justified.

However, there are reasons to expect that justified indulgence makes subsequent giving in to temptation less likely. These follow directly from the conflict resolving potential of self-licensing, and the proposed accompanying benefits for perceived self-regulatory ability. To begin with the former: When an initial confrontation with temptation does not need to be resolved in favor of the long-term goal because there was a good reason to give in to this temptation, as a result of self-licensing lowering feelings of conflict, it does not necessarily require the activation of self-regulatory efforts. Consequently, these efforts can be directed to subsequent challenges, and there might be more willingness to do so (Inzlicht & Schmeichel, 2012).

Then there is the latter proposition that self-licensing has the potential to preserve an individual's perceived self-regulatory ability by affecting how indulgent acts are interpreted. These self-perceptions of being able to handle self-regulatory conflicts can be expected to result in actual effective behavior. A parallel can be drawn here with implicit theories of willpower. It has been demonstrated that the belief that willpower is highly limited predicts poor self-regulation, whereas the belief that willpower is plentiful or even self-regenerating predicts successful self-regulation and more persistence when facing difficult challenges (Job, Dweck, & Walton, 2010). Perceiving oneself as motivated, self-efficacious, and in control when facing temptations may produce similar outcomes. Another consideration that points to the beneficial side of self-licensing in sequential temptation enactment is that justifying indulgence may prevent the so called "what the hell effect". This has been observed in several behavioral domains, most notably in eating behavior. It refers to a little slip leading to the thought that now one's diet is blown, there is no point in further restriction (Polivy & Herman, 1985). This is also known as "counter

regulatory eating", a term based on the observation that dieters, but not nondieters, ate even more once they received a "forced preload" (i.e., a milkshake; Herman & Mack, 1975). However, by justifying the "little slip", the perceived damage to one's diet is most likely attenuated, which consequently prevents the escalation of goal derailment that is likely to occur otherwise.

As most studies discussed above have not been conducted in the context of self-licensing, there is not enough direct empirical evidence to draw valid conclusions regarding self-licensing effects in sequential temptation enactment. Although it is plausible that justified indulgence leads to a sequence of failure, there is considerable theoretical ground to examine an opposite scenario where self-licensing supports subsequent handling of temptation. Hence, the present study looks into this potentially beneficial effect of self-licensing with a momentary assessment design.

The Present Study

The aim of the present study was to examine whether resolution of goal conflict by relying on licenses benefits or harms perceived self-regulatory ability and the handling of subsequent temptations. It was expected that (a) self-licensing (partly) resolves the goal conflict that arises when facing temptations, with most pronounced effects for strong temptations; (b) justified indulgence, compared with unjustified indulgence, results in higher levels of perceived self-regulatory ability, in terms of feelings of control, motivation, self-efficacy, and goal importance; and (c) justified indulgence, compared with unjustified indulgence, leads to better handling of subsequent temptations. The study was conducted in the domain of eating behavior and among a female sample, as food temptations typically evoke self-regulatory conflict (Vohs & Baumeister, 2011), but particularly in women as they are in general more concerned about their body weight than men (Grabe, Ward, & Hyde, 2008).

A difficulty with measuring self-licensing is that a direct assessment may interfere with justification processes, most notably when participants become aware of the fact that they are generating excuses to give in to food temptations. An opposite effect can occur as well, when making participants aware of license opportunities prompts self-licensing that would not have occurred naturally. Therefore, in the present study, self-licensing was assessed indirectly. To this end, participants were presented with a list of "circumstances" and indicated which circumstances applied to them, unknowingly of the fact that they represented generally employed justifications like 'I was bored' or 'I worked hard' (Taylor et al., 2013; Verhoeven, Adriaanse, De Vet, Fennis, & De Ridder, 2015).

Endorsing more "circumstances", that is, more available licenses, meant more opportunity to use one or more of these licenses to justify temptation enactment. Hence, this index of available potential licenses represented license opportunity.

Temptation enactment was measured on a continuous scale, as there can be gradual differences in the extent food temptations are given into (e.g., eating a handful of crisps vs. eating a whole bag). In addition to the degree of temptation enactment, the strength of the temptation, the perceived conflict, and the degree of resistance (i.e., self-control effort) were assessed. By doing so, all relevant steps that are involved in the enactment (or resistance) of food temptations were covered (Hofmann, Baumeister, Förster, & Vohs, 2012).

To reliably capture self-licensing opportunity and the handling of food temptations, momentary assessment was preferred over an experience sampling procedure. With random sampling, chances of missing potential licenses and food temptations increase. Therefore, the present study employed a momentary assessment design in which participants were signaled every 2 hr and reported on license opportunity and food temptations over the last 2 hr. In this way, it was ensured that all occasions of interest were covered (with the exception of nonresponse). For the analyses, we first looked at the associations between variables measured at the same occasion, followed by analyses of lagged effects, where we took the scores from the previous occasion to see whether these predicted outcomes in the following occasions. Based on previous studies where the dependent measure followed directly after the self-licensing manipulation (e.g., De Witt Huberts et al., 2012; Taylor et al., 2013), it can be expected that self-licensing effects occur close in time. However, these studies were conducted in a lab setting where participants are provided with an opportunity to indulge. Hence, it is possible that in daily life, such opportunities are not always readily available, with more distal effects as a result. Also, there are currently no indications for how long a license opportunity can be effectively used to justify indulgent behavior. By looking at lagged effects, a wider time frame is covered, which can provide more insight in the temporal spacing of self-licensing effects. Also, in comparison with associations between variables measured at the same time point, finding lagged relationships provides stronger evidence for the proposed order of effects.

Method

Participants

A total of 275 women were screened for eligibility (see Procedure) and were selected to participate, of whom 193 chose to proceed with their participation. Of these participants, 53 participants quit prematurely or provided insufficient data (response rate < 62.5%; see Procedure). In addition, two participants reported no temptations,[1] and two participants did not hold a sufficiently strong diet goal (see Measures). This resulted in a final sample of 136 participants, with a mean age of 27.06 years (*SD* = 9.74; range = 18-63) and a mean body mass index (BMI) of 23.03 (*SD* = 3.35; range = 16.90-37.98).[2] After completing the study, participants were reimbursed with 20 euros and the chance to win a book on the psychology of eating behavior.

Procedure

Participants were recruited through social media (e.g., Facebook) and through advertisements placed on the message boards of supermarkets. Women between the ages of 18 and 65 who were interested in participating in a study on food temptations were asked to respond by sending an e-mail to the experimenters. Respondents received a link to an online screening survey, in which demographics, BMI, diet goal, weight loss target (in kg), trait self-control, and the presence of a current eating disorder (exclusion criterion) were assessed. See Figure 1 for a flow chart. Subsequently, participants received instructions and a link to an information video through e-mail, explaining the content, goal, and procedure of the study. A cover story led participants to believe that the study looked into food temptations in daily life, by examining a broad set of variables including the experience of food temptations. After watching the video, a link to an informed consent form was presented, which they needed to sign to proceed. In this form, it was also verified that the participants owned a smartphone with constant Internet connection, and it was assessed at what time they wanted to start receiving text messages during the momentary assessment phase of the study (i.e., 8, 9, or 10 a.m.).

The momentary assessment phase comprised a full week (i.e., Monday to Sunday). The start time varied over the course of the week, ranging from 10 min before to 10 min after. Participants received a text message with a link to a short online survey, and this was repeated precisely every 2 hr. Consequently, participants could answer the

[1] Ten participants reported experiencing only one or two temptations. Removing these participants from the statistical analyses resulted in similar outcomes.

[2] Due to an error in the data collection procedure, the screening survey (measuring demographics and BMI) is missing for three participants. The exit survey (measuring restrained eating) is missing for two participants.

surveys around—yet not exactly—the same time, so that it would not always coincide with specific recurring events (e.g., lunch at 12 p.m.). For each survey, participants had 20 min to respond, otherwise the survey closed and was registered as a nonresponse. Every day, participants received eight text messages, spanning a time window of 14 hr. The last survey was sent at 10 p.m. (in the 8 a.m. group) or 10.15 p.m. (in the 9 and 10 a.m. groups), and participants were instructed to fill out this survey right before they went to sleep. Hence, this survey was accessible until morning. Participants provided sufficient data when they responded to a minimum of five text messages per day. Those who did not meet this criterion were given the opportunity to receive text messages for an extra day, resulting in a minimum of 35 responses in total per participant (excluding noncompleters).

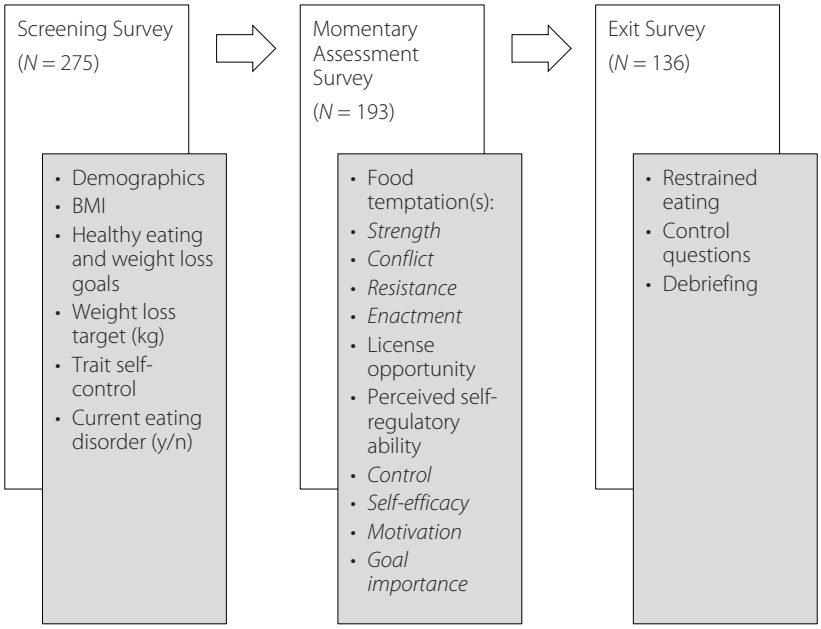

Figure 1. Flow chart of the experimental procedure.

In the survey, participants were instructed to report the food temptations that they experienced within the last 2 hr. Participants provided a short description of the most focal temptation, the strength of this temptation, the degree of self-regulatory conflict they perceived, to what degree they resisted the temptation, and to what degree they enacted on the temptation. In addition, participants were asked to indicate what "circumstances" (i.e., potential licenses) applied to them over the last 2 hr, by going through a list of 25

items (see Table 1). Lastly, participants reported how they perceived their self-regulatory ability, in terms of how much control, self-efficacy, motivation, and goal importance they felt with respect to their diet.

After the week of momentary assessments, the study ended with an exit survey in which restrained eating was assessed. It was also checked whether participants had any idea about the true goal of the study, and they were probed to indicate how carefully they had answered the momentary assessment surveys. Finally, participants were debriefed and thanked for their participation.

Table 1. *Prevalence of Potential Licenses*

Potential License		Frequency	%
1.	I was on the right track	1163	11.3
2.	I did my best	920	8.9
3.	I worked hard	861	8.4
4.	I made an effort	748	7.3
5	I felt good about myself	669	6.5
6.	I felt drained	616	6.0
7.	I did someting good	601	5.8
8.	I got offered a treat	494	4.8
9.	I was stressed	455	4.4
10.	I felt sad	413	4.0
11.	I did a good job	386	3.7
12.	I made good intentions	348	3.4
13.	I exerted willpower	339	3.3
14.	I had a difficult time	336	3.3
15.	I achieved a goal	324	3.1
16.	I was bored	288	2.8
17.	I completed a difficult task	212	2.1
18.	I was at a special occasion	200	1.9
19.	There was a special moment	196	1.9
20.	I deserved a reward	167	1.6
21.	I needed something to make me feel better	159	1.5
22.	I had something to celebrate	159	1.5
23.	I failed at something	102	1.0
24.	I had some bad luck	94	0.9
25.	I received bad news	66	0.6
Total		10430	100%

Note. In the study, the potential licenses were presented in random order.

Materials[3]

Screening survey.

Demographics. Participants reported their age, completed or current education, occupation, work hours per week, and their household composition.

BMI. Participants' BMI was calculated using their reported weight and height.

Diet goal. To verify that participants experienced self-regulatory conflict when facing food temptations, it was examined whether they had the goal to lose weight ('Losing weight is one of my personal goals') and/or to eat healthily ('Eating healthily is one of my personal goals'). Answers were given on a visual analogue scale (VAS) running from 0 (*Not at all applicable to me*) to 100 (*Totally applicable to me*). Participants who scored 0 on both goals were excluded from further participation. For the final sample, a sum score was computed to represent participants' diet goal. Hence, diet goal referred to both the goal to lose weight as well as to eat healthily.

In addition, for the goal(s) that participants scored > 0, the importance of the goal was measured: 'How important is this goal to lose weight for you?' and 'How important is this goal to eat healthily for you?' for the weight loss and healthy eating goal, respectively. Answers were given on a VAS running from 0 (*Not important at all*) to 100 (*Very important*).

Weight loss target (kg). The amount of body weight participants wanted to lose (or gain) was calculated by subtracting their reported target weight from their current weight. In addition, they were asked, 'How important is it for you to reach or keep this target weight?' with answers given on a VAS running from 0 (*Not important at all*) to 100 (*Very important*).

Trait self-control. The short version of the Trait Self-Control Scale (Tangney, Baumeister, & Boone, 2004) consisting of 13 items was used to measure dispositional self-control. A sample items is, 'I am able to work effectively toward long-term goals'. Answers were given on a Likert scale ranging from 1 (*Totally disagree*) to 5 (*Totally agree*). A mean score was computed (a = .82).

[3] The present data were derived from an extensive momentary assessment study that included the assessment of additional variables that are not further reported on in the present manuscript.

Eating disorder. Participants were asked to indicate whether they were currently suffering from an eating disorder (*yes/no*). If this was the case, they were excluded from participation.

Momentary assessment survey.[4] To avoid order effects, the item blocks food temptations and license opportunity were randomized every time a new survey was opened. Self-regulatory ability was always assessed last, as this constituted more reflective items that may affect participants' further responses.

Food temptations. Participants were instructed to report the food temptations that they experienced within the last 2 hr ('Did you experience a food temptation?'). If they did not experience a temptation, they received no further questions. In cases where more than one temptation was experienced, they had to remember the most focal temptation. After providing a short description, strength ('How strong was this food temptation?'), conflict ('To what degree did this food temptation conflict with your diet goal?'), resistance ('To what degree did you try to resist this food temptation?'), and enactment ('To what degree did you give in to this food temptation?') were addressed. Answers were given on a VAS ranging from 0 (*Not at all*) to 100 (*Very much*).

License opportunity. Participants were asked to indicate what circumstances applied to them over the last 2 hr, by going through a list of 25 items, interspersed with five filler items. These "circumstances" represented potential licenses that can be used to justify giving in to food temptations, and the more potential licenses, the higher the license opportunity. The items were constructed based on earlier studies looking into self-licensing (De Witt Huberts et al., 2014a; Taylor et al., 2013) and reasons for snacking (Verhoeven et al., 2015). Example items are 'I was bored', 'I worked hard', and 'I received bad news'. Participants checked a box for each license that applied to them. All items were randomized for each survey (see Table 1 for an overview of all licenses).

Perceived self-regulatory ability. Four items addressed participants' perceived self-regulatory ability. These items were [At this moment, . . .] 'To what degree do you feel in control over your eating behavior' (*control*), 'How confident are you that you can resist food temptations?' (*self-efficacy*), 'How motivated are you to act in line with your diet goal?' (*motivation*), and 'How important do you find your diet goal?' (*goal importance*). All items were randomized for every survey, and answers were given on a VAS ranging from 0 (*Not*

[4] In the group of participants that started at 8 a.m. (final $n = 14$), a data collection error occurred that resulted in missing data for two momentary assessment surveys. Both surveys were the last one of the respective day.

at all) to 100 (*Very much*). A mean score was computed to represent perceived self-regulatory ability (*a* =.89).

Exit survey.

Restrained eating. To assess restrained eating, the 10-item Restraint Scale was administered (Polivy, Herman, & Warsh, 1978). An example item is 'How often are you dieting?' with an answer scale ranging from 0 (*Never*) to 4 (*Always*). A mean score was computed (*a* = .74; see Note 2).

Control questions. To check whether participants' responses were sufficiently reliable, the following three items were administered: 'To what degree have you answered honestly', 'How difficult was it to continue with filling out the surveys', and 'How often did you refrain from reporting a temptation that you did experience?' (numeric answer). The answers on the first two items were given on a VAS ranging from 0 (*Not at all*) to 100 (*Very much*).

Results

Drop-out analysis

Participants who did not provide sufficient responses (n = 53; see Procedure) were compared with the final sample (n = 136) on the variables collected in the screening survey. Separate ANOVAs with age, diet goal, weight loss target (kg), BMI, and trait self-control as outcome variables revealed no differences between the sample (all $ps > .138$) except for trait self-control. Participants in the drop-out sample scored lower on trait self-control (M = 2.88, SD = 0.63) than participants in the final sample (M = 3.16, SD = 0.58), $F(1, 183) = 8.52$, $p = .004$.[5] Chi-square analyses with the dichotomous/categorical variables student status, education, and household composition showed no differences between samples (all $ps > .079$).

[5] The mean level of trait self-control in the final sample does not diverge from generally obtained levels of trait self-control in large (community) samples (see meta-analysis of De Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012).

Descriptives

Adherence. The number of completed surveys ranged from 37 to 60 (Note: Due to the extra day that was provided to participants who did not meet the adherence criterion, the maximum number of responses was 64), with a mean of 49.31 responses (*SD* = 4.13), resulting in a response rate of 88.1%. Participants indicated that they had been quite honest in answering the survey questions (*M* = 91.61, *SD* = 13.36) and that they found it moderately difficult to adhere to filling out the surveys (*M* = 57.22, *SD* = 27.50). The number of times that they did not report a temptation although they experienced one was very low, with a mean of 1.53 times (*SD* = 0.63; range = 1-3). Demographics and sample characteristics. The sample consisted of 78 students (58.6%), 50 employed (37.6%), and 5 unemployed individuals (3.8%; see Note 2). Descriptive information on education, current study/profession, work hours per week, and household composition showed sufficient diversity. To illustrate, participants worked in different sectors (e.g., finance, health care, education), lived with children (36.4%) or without (63.6%), and worked 0 to 40 hr per week with the majority reporting a 24- to 36-hr work week (60.0%). Further descriptives can be found in Table 2.

Diet goal. Participants' diet goal scores ranged from 24 to 200, with a mean of 127.51 (*SD* = 40.98). These scores indicated that all participants experienced self-regulatory conflict, albeit to varying degrees, when facing food temptations.

Food temptations. Participants reported having a temptation in 23.8% of the occasions that they filled out the momentary assessment survey. They reported a total of 1,612 temptations, which constitutes 11.85 temptations per participant over the whole week (1.69 per day). Of these temptations 1,341 (83.2%) were enacted. On average, temptations were reported to be quite strong (*M* = 68.98, *SD* = 20.43) and conflicting with long-term goals (*M* = 66.27, *SD* = 25.42). The degree to which participants actively tried to resist the temptation was moderate (*M* = 42.21, *SD* = 30.66), and when temptations were enacted, it was to a high degree (*M* = 62.27, *SD* = 36.37).

Table 2. *Descriptive Statistics and Intercorrelations for Trait and Eating Behavior Variables*

Variable	*M*	*SD*	Range	1	2	3	4	5	6	7
1. Healthy eating goal[p]	75.77	19.06	20 - 100	-						
2. Healthy eating goal[i]	73.61	19.27	12 - 100	.84**	-					
3. Weight loss goal[p]	51.74	31.37	0 - 100	.28**	.28**	-				
4. Weight loss goal[i]	52.20	29.06	0 - 100	.14	.21*	.91**	-			
5. Weight loss target[kg]	4.62	5.09	-2 - 45[a]	.12	.12	.58**	.50**	-		
6. Weight loss target[i]	60.58	25.23	0 - 100	.27**	.30**	.55**	.61**	.31**	-	
7. Trait self-control	3.16	.58	1.92 - 5	.08	-.03	-.26**	-.32**	-.12	-.21*	-
8. Restrained eating	1.43	.48	.4 - 2.8	.22*	.28**	.54**	.52**	.39**	.37**	-.41**

[a] The weight loss target scores of two participants were identified as extreme outliers (> 3 *SD* above the mean). Removing these participants from the statistical analyses resulted in similar outcomes.
[p] = presence. [i] = importance. * $p < .05$. ** $p < .01$.

License opportunity. All participants together reported 10,430 potential licenses, which constitutes 76.69 licenses per participant on average (10.96 per day). The total number of potential licenses reported at one occasion ranged from 0 to 16. The potential licenses that were most frequently reported were 'I was on the right track' (11.3%), 'I did my best' (8.9%), and 'I worked hard' (8.4%). The least frequently reported licenses were 'I failed at something' (1%), 'I had some bad luck' (0.9%), and 'I received bad news' (0.6%). This pattern suggests that positive events occurred more often than negative events, meaning that there seems to be more opportunity to use positive events as a license for temptation enactment. See Table 1 for a complete overview.

Self-regulatory ability. On average, participants reported high feelings of control over their diet (M = 72.30, SD = 20.34), high diet self-efficacy (M = 70.45, SD = 21.77), strong diet motivation (M = 71.64, SD = 20.74), and high diet goal importance (M = 72.32, SD = 20.62).

Multilevel data analysis

Because of the nested data structure, with momentary assessments nested within days within participants, regression analyses were conducted using the multilevel software HLM (version 6.06; Hox, Moerbeek, & Van de Schoot, 2010; Snijders & Bosker, 2012). All Level 1 predictors were person-mean centered, thereby representing the deviation from

the participant's respective mean. Dependent variables were left in their original metric. For some relationships between variables, it was considered insightful to see whether the coefficients were randomly varying (indicating that there are individual differences in the strength of the relationship) or fixed (indicating that the effect is constant across persons). Associations that were theoretically expected to result in randomly varying coefficients were modelled as such, except when the random error terms appeared nonsignificant. To determine this, a more liberal *p* value of .10 was employed when conducting significance tests of random error terms (Nezlek, 2012). For each analysis, normality assumptions for residuals on all three levels were checked. After removing outliers,[6] no violations were detected, unless reported otherwise.

Conflict-resolving qualities. It was assessed whether license opportunity was associated with less perceived conflict, taking temptation strength into account. Therefore, license opportunity, temptation strength, and their interaction term were regressed on perceived conflict. There was a main effect of temptation strength on perceived conflict, $B = .24$, $p < .001$ (randomly varying, $p = .008$); a nonsignificant main effect of license opportunity, $B = -.46$, $p = .139$; and a significant moderator effect, $B = -.04$, $p = .013$ (fixed effect, $p > .500$). Plotting the interaction shows that perceived conflict increased as the temptation became stronger, but this association was weaker when license opportunity was higher (see Figure 2). A simple slopes analyses with bonferroni correction confirmed that these observed positive linear relationships between temptation strength and perceived conflict were significant for both low (simple slope = .30, $t = 5.92$, $p < .001$) and high license opportunity (simple slope = .17, $t = 4.08$, $p < .001$). Also, for low temptation strength, there was no effect of license opportunity on perceived conflict (simple slope = .22, $t = 0.55$, $p = 1.00$), but for high temptation strength, the perceived conflict decreased as license opportunity increased (simple slope = -1.13, $t = -2.67$, $p = .018$).

To test whether license opportunity from a previous occasion predicted conflict on the following occasion, a similar interaction analysis with license opportunity added as lagged predictor (i.e., taking the scores from the previous occasion, indicated as T^{-1}) was performed. This did not reveal a significant interaction effect between temptation strength and license opportunity at T^{-1} in affecting perceived conflict at T^{0}, $B = .03$, $p = .079$ (fixed effect, $p > .500$), showing that license opportunity on one occasion did not predict perceived conflict on a following occasion.

To examine the other steps that are involved in the enactment (or resistance) of temptations, separate regression analyses on the associations between perceived conflict,

[6] The number of outliers ranged from 0 to 6. Analyses including these outliers resulted in similar outcomes.

resistance, and temptation enactment were performed. It was found that perceived conflict was positively related to resistance, $B = .13$, $p < .001$, but not directly to temptation enactment, $B = .04$, $p = .295$. Logically, resistance showed a negative association with temptation enactment, $B = -.80$, $p < .001$.

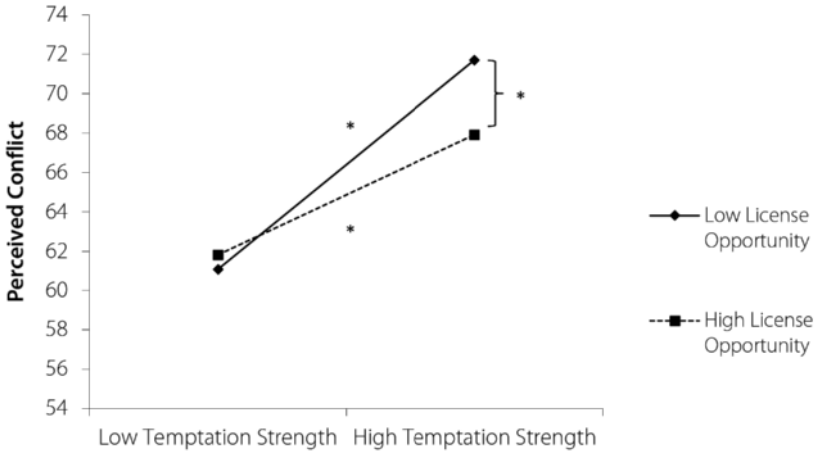

Figure 2. Interaction between temptation strength and license opportunity in affecting perceived conflict. * $p < .05$.

Self-regulatory ability. To test whether the degree of temptation enactment (excluding occasions of no enactment, that is, successful resistance) was associated with changes in perceived self-regulatory ability, and whether this depended on license opportunity, a regression analysis was performed with perceived self-regulatory ability as outcome variable. License opportunity, degree of temptation enactment, and their interaction term were added as predictors. It was found that temptation enactment was negatively associated with self-regulatory ability, $B = -.08$, $p < .001$. There was no significant association between license opportunity and perceived self-regulatory ability, $B = .002$, $p = .990$, but a significant moderator effect of license opportunity on the association between degree of temptation enactment and perceived self-regulatory ability, $B = -.02$, $p = .005$ (fixed effect, $p > .500$) was observed. Plotting the interaction showed that for both low and high license opportunity, higher temptation enactment was associated with lower self-regulatory ability (see Figure 3). Simple slopes analyses with bonferroni correction showed that the observed linear relationship between temptation enactment and perceived self-regulatory ability was significant for high license opportunity (simple slope = -.11, $t = -6.57$, $p < .001$) but not for low license opportunity (simple slope = -.05, t

= -2.17, p = .062). Moreover, for both low and high temptation enactment, there was no effect of license opportunity on perceived self-regulatory ability (simple slope = .42, t = 1.89, p = .122 for low temptation enactment; simple slope = -.41, t = -1.55, p = .246 for high temptation enactment).

To test whether license opportunity from a previous occasion predicted perceived self-regulatory ability, a similar interaction analyses with license opportunity added as lagged predictor was performed. This did not reveal a significant interaction effect between degree of enactment and license opportunity at T^{-1} in affecting perceived self-regulatory ability at T^{0}, B = -.00, p = .763 (fixed effect, p > .500).

To assess whether perceived self-regulatory ability subsequently predicted temptation enactment, a regression analysis with temptation enactment as outcome variable and perceived self-regulatory ability added as a lagged predictor was performed. This showed that perceived self-regulatory ability at T^{-1} predicted enactment at T^{0}, B = -.34, p < .001 (fixed effect, p = .150). This means that higher self-regulatory ability predicted lower temptation enactment.

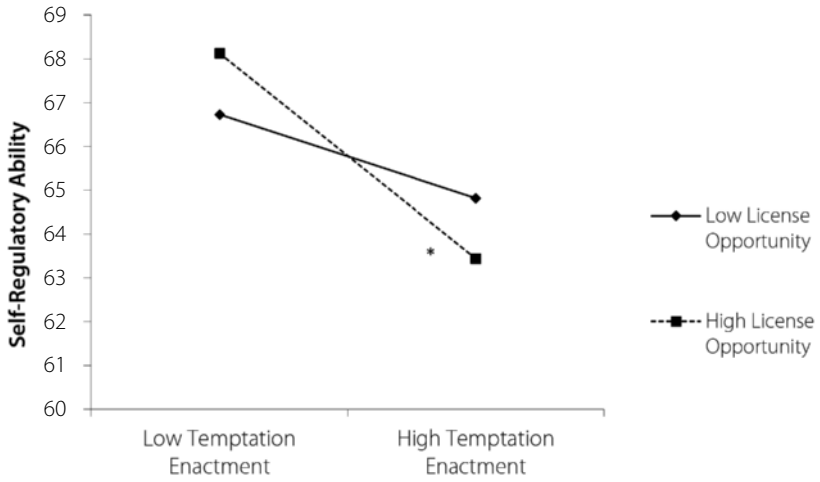

Figure 3. Interaction between degree of temptation enactment and license opportunity in affecting self-regulatory ability. * p < .05.

Subsequent temptation enactment. It was assessed whether the degree to which a prior temptation was enacted (excluding occasions successful resistance) predicted the degree to which a subsequent temptation (i.e., in the following occasion) was enacted, and whether this depended on license opportunity for the prior temptation.

To test this moderator effect of license opportunity on the relationship between prior and subsequent temptation enactment, license opportunity at T^{-1} and temptation enactment at T^{-1} and their interaction term were regressed on temptation enactment at T^{0}. Because of minor violations of the normality of error distribution assumption for these analyses, the following results are based on modeling with robust standard errors. Before adding the interaction term, license opportunity had no effect on subsequent temptation enactment, $B = -1.95$, $p = .064$. There was also no main effect of prior temptation enactment, $B = .10$, $p = .344$ (randomly varying, $p = .008$). Adding the interaction term resulted in a significant moderator effect of license opportunity on the association between degree of prior and subsequent enactment, $B = -.06$, $p = .036$ (fixed effect, $p > .500$), with similar main effects as in the previous analysis. Plotting the interaction showed that when there was high license opportunity for enacting on a first temptation, the degree of subsequent temptation enactment was not dependent on the degree of the prior enactment. When license opportunity was low, the degree of subsequent temptation enactment seemed to increase as the degree of prior temptation enactment increased (see Figure 4). Simple slopes analyses with bonferroni correction showed that there was indeed no significant linear relationships between prior temptation enactment and subsequent enactment for high license opportunity (simple slope = .03, $t = 0.27$, $p = 1.00$). However, neither was the case for low license opportunity (simple slope = .24, $t = 2.13$, $p = .071$). Also, in case of low prior temptation enactment, license opportunity did not affect subsequent enactment (simple slope = -1.26, $t = -1.42$, $p = .318$), but in case of high prior temptation enactment, higher license opportunity predicted lower subsequent temptation enactment (simple slope = -3.90, $t = -2.37$, $p = .038$).

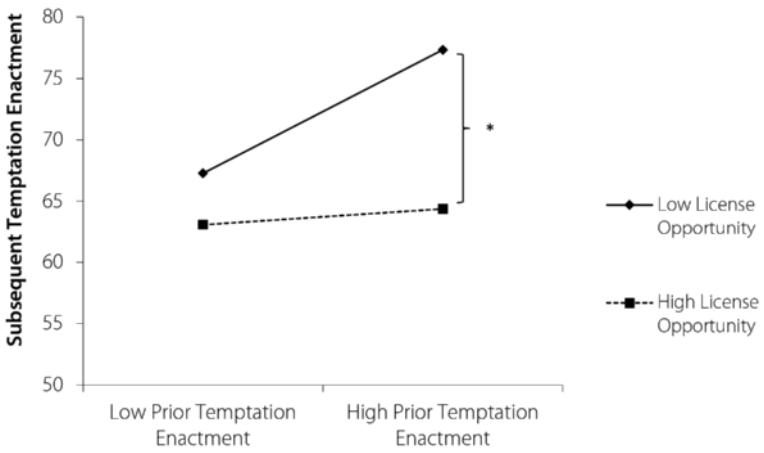

Figure 4. Interaction between degree of prior temptation enactment and license opportunity in affecting degree of subsequent temptation enactment. * $p < .05$.

Discussion

The present study was designed to provide evidence for the assumed but untested conflict-resolving qualities of self-licensing, and to examine the secondary effects of self-licensing over time in terms of perceived self-regulatory ability and handling of subsequent temptations. We found supporting evidence for our proposition that self-licensing promotes initial self-regulation failure because of its conflict-resolving qualities. Generally, self-regulatory conflict in response to experiencing food temptations increased as temptations became stronger, but this effect was weaker when license opportunity was high as opposed to low. Also, when temptation strength was high, a greater license opportunity was associated with less perceived conflict. When temptation strength was low, no difference was observed between low and high license opportunity. This implies that the enactment of strong temptations needs more justification than the enactment of weak temptations, and when the opportunity to self-license is high, this indeed seems to lower self-regulatory conflict. It was also found that greater conflict increased resistance, which in turn decreased the degree of temptation enactment. This is in line with previous studies showing that the identification of self-regulatory conflict is pivotal for eliciting self-control attempts (Gillebaart & De Ridder, 2015; Myrseth & Fishbach, 2009). More importantly, these findings suggest when conflict is (partly) resolved, this most likely leads to less resistance and more enactment, which is in line with previous observations of self-licensing promoting temptation enactment (e.g., De Witt Huberts et al., 2012; Taylor et al., 2013; Wilcox et al., 2011). Taken together, these findings speak to the assumption that self-licensing leads to less activation of self-control efforts and resolution of self-regulatory conflict in favor of the immediately gratifying option.

The prediction that self-licensing helps maintain perceived self-regulatory ability was partly confirmed. Greater license opportunity resulted in higher perceived ability when temptations were only slightly given into compared with high degrees of indulgence. This suggests that having many licenses available protects the image of being a competent self-regulator only for low degrees of failure. It could be that for high degrees of failure, a sort of boomerang effect occurs, where the realization of having justified indulgence results in less trust in one's ability to refrain from self-licensing in the future ('I tricked myself again, I always do that'), and hence feelings of low self-regulatory competence.

The expectation that self-licensing benefits the handling of subsequent temptations was also partly confirmed. Only in cases of high prior temptation enactment, more self-licensing opportunity predicted lower degrees of subsequent enactment, and vice versa. This is in line with the notion that self-licensing can help "wipe the slate

clean" after an initial goal violation, as low license opportunity for high degrees of prior indulgence predicted higher subsequent enactment. In other words, something indicative of a "what the hell effect" seemed to occur after a prior (most likely) unjustified indulgence. Furthermore, this finding suggests that especially high degrees of indulgence are problematic when there are no reasons or justifications available. Low levels of indulgence did not affect subsequent handling of temptation, irrespective of license opportunity. It could be that low levels of indulgence do not need a justification, or can function as a justification in itself ('a small bite won't hurt my diet').

The finding that high license opportunity is beneficial for the handling of subsequent temptations contrasts with previous findings from vignette studies showing that a licensed indulgent choice leads to higher likelihood of making a second indulgent choice (Prinsen et al., 2016). This can be explained by the differences in methodology, as scenarios in vignettes are choices based on what subjects think they would do, whereas the behavior in the present study is based on what subjects actually did. Taken together, it seems that people think that a prior goal violation may initiate a sequence of failure, whereas in reality, having license opportunities results in better handling of subsequent temptations.

Interestingly, when the obtained outcomes are viewed side by side, it becomes evident that the effects of self-licensing on perceived self-regulatory ability and subsequent temptation enactment do not fit the expectation that preserved perceptions of being a good self-regulator lead to better handling of subsequent self-regulatory conflicts. That is, when license opportunity was high, (a) perceived self-regulatory ability decreased as temptation enactment increased, but (b) there was no effect of the degree of prior temptation enactment on the degree of subsequent temptation enactment. However, we did find that, in general (without taking self-licensing opportunity into account), higher perceived self-regulatory ability predicted lower degrees of subsequent failure, which implies that perceptions of being a good self-regulator do translate into actual behavior. A potential explanation, albeit speculative, is that although generally higher perceived self-regulatory ability predicts lower enactment, when this perceived ability is a reaction to prior (licensed) enactment, the effect may be more variable and even in the opposite direction. For example, for some individuals, low levels of perceived self-regulatory ability resulting from the realization they "tricked themselves again" (see "boomerang effect" discussed earlier) can instigate a need to repair these self-perceptions by behaving in line with their goal again. At the same time, high levels of self-regulatory ability due to licensing may result in higher temptation enactment when these perceptions are interpreted as credentials to indulge ('generally, I can handle temptations well, so I can indulge this one time'). Hence, there may be individual differences in how licensed

indulgence and self-perceptions are responded to that can account for the (perhaps seemingly) opposing outcomes. Future research is necessary, however, to confirm the merit of these speculations.

Altogether, the insight that self-licensing, a phenomenon that is typically depicted as a showcase of self-regulation failure because people deliberately and strategically use reasons to indulge, may also have positive effects is an innovative finding. Importantly, accommodating these new insights in the current self-licensing framework can greatly contribute to theoretical development. Currently, self-licensing theory remains silent when it comes to predicting effects over time. The positive effects of self-licensing were revealed due to unraveling the temporal dynamics of self-licensing rather than assessing its consequences in a single, momentary moment. Thereby, first encouraging findings are provided that can inspire future research into the potential benefits of self-licensing. Besides corroborating the current conclusions, these future studies can take into account the limitations that are discussed next.

Limitations and directions for future research

Although the predictions on the conflict-resolving qualities of self-licensing and its effects on self-regulatory ability were largely supported, these findings were not substantiated by significant lagged relationships. That is, no effects were found when it was tested whether license opportunity from one occasion predicted outcomes on a following occasion, which would have provided support that one variable predicts the other and not the other way around. However, the lack of significant lagged relationships suggests that just as in lab studies (e.g., De Witt Huberts et al., 2012; Taylor et al., 2013), in daily life, self-licensing effects also occur close in time. In general, finding lagged relationships depends highly on the frequency of occurrence and temporal spacing of the variables of interest. Although the present study was designed to cover all occurrences and handling of food temptations, the number of potential licenses was aggregated over 2 hr periods. As a consequence, when looking at lagged effects, the interval between having a license available and enacting on a temptation could range from 4 hr to a couple of minutes. If self-licensing is indeed dependent on close temporal spacing between potential licenses and experiencing food temptations, this wide range could have obscured the identification of a significant relationship. This may explain the absence of a lagged effect of licenses on resolving perceived conflict and attenuating the detrimental effects of enactment on self-regulatory ability. For future studies, it is recommended to

take smaller time intervals between measurements to get a more precise picture of the temporal spacing of self-licensing effects.

One of the major challenges with studying self-licensing remains that direct assessment is not possible. When asked in situ, it potentially interferes with the process. When asked afterward, confabulation can occur, where people come up with faulty reasons (i.e., confabulate) to retrospectively explain their behavior (Adriaanse, Weijers, De Ridder, De Witt Huberts, & Evers, 2014; Bar-Anan, Wilson, & Hassin, 2010). Confabulation effects are not completely ruled out in the present study. It could be that participants impulsively enacted on a temptation, and subsequently felt bad, so while subsequently filling out the survey confabulated a reason or made use of one of the provided reasons, 'I indeed worked hard just now, I deserved it'. However, the order of reporting temptations and potential licenses was randomized, which makes this possibility less likely. Nonetheless, future studies on self-licensing should make sure to reliably distinguish between self-licensing and confabulation effects.

Another limitation of how potential licenses were measured is that it was restricted to momentary opportunities, in that the licenses are situations ('I received bad news') or behaviors ('I worked hard') that occur in the moment. However, people are very creative in finding reasons to justify goal violations. For example, recalling an altruistic action (Weibel et al., 2014) or a personal achievement (Wilcox et al., 2011) can also license people to make unhealthy food choices in the present, even though these virtuous acts may have happened weeks ago. Also, making plans to compensate the goal violation, known as compensatory intentions (Knäuper, Rabiau, Cohen, & Patriciu, 2004), are a way to resolve self-regulatory conflicts. These types of licenses were not covered in the present study. Nonetheless, the licenses that were used in the present study have been identified as the most common reasons to indulge in unhealthy foods (Taylor et al., 2013; Verhoeven et al., 2015). Future research should examine to what extent licenses that are derived from previous occasions or compensatory intentions can influence self-regulatory efforts over time.

Overall, the present work invokes several important questions for future research. For example, although it was found that, in general, higher perceived self-regulatory ability lead to lower temptation enactment, it can be imagined that high levels of perceived self-regulatory ability are not always good. When an individual repeatedly fails to self-regulate, while maintaining high perceived self-regulatory ability through self-licensing, a need to change one's behavior seems unlikely. Hence, it would be insightful to see whether there are indeed differences in the functionality of having high perceived ability between "chronic" and "occasional self-licensers". This may also be related to the individual

differences in how licensed indulgence is responded to in terms of self-perceptions, as discussed earlier.

Also, random effects were observed, indicating individual differences in the strength of some relationships. This was the case for the association between temptation strength and self-regulatory conflict, as well the effect of prior temptation enactment on subsequent enactment. For future studies, it is interesting to see what kind of characteristics can explain these individual differences. Lastly, the current conceptualization of license opportunity raises the question of whether more licenses lead to higher degrees of self-regulation failure. Theoretically, one license can be enough to fully indulge oneself, but it seems reasonable to believe that having more reasons makes it easier to abandon one's goal. Also, having more licenses to indulge (e.g., being bored and stressed while being at a special occasion) can make a situation more distinct and rare, and hence reinforce the belief that the accompanying failure is an one-off event. As a result, there may be no implications for the (perceived) self-regulatory capacity to deal with future challenges. Overall, looking into quantity dependent effects of self-licensing and the underlying mechanisms can be a fruitful avenue for future research.

Notwithstanding these limitations, this study is the first to examine self-licensing in a natural setting and over time. Importantly, reliable data were obtained as the representative sample showed a high adherence rate, which is further substantiated by the fact that they reported honesty and conscientiousness in registering their experiences. Another important strength was the unobtrusive measurement of self-licensing. Although tapping into self-licensing processes requires indirect assessment that has its limitations, the obtained outcomes suggest that an appropriate method was employed.

Conclusion

Self-licensing can be seen as detrimental to the successful attainment of long-term goals, as it promotes self-regulation failure. Nonetheless, when looking at other outcomes of self-licensing processes, there seem to be effects that may promote self-regulatory success in the long run. By showing associations between self-licensing and perceived self-regulatory ability as well as self-licensing effects in sequential temptation enactment, the present study shed light on relatively unexplored yet important secondary outcomes. That is, while it seems like the conflict-resolving qualities of self-licensing do not necessarily help maintain self-regulatory ability, they do appear to promote the handling of subsequent temptations.

5

Introducing functional and dysfunctional self-licensing

Associations with indices of (un)successful dietary regulation

Prinsen, S., Dohle, S., Evers, C., De Ridder, D. T. D., & Hofmann, W. (2018). Introducing functional and dysfunctional self-licensing: Associations with indices of (un)successful dietary regulation. *Journal of Personality.*

Acknowledgement of author contributions:
SP, SD, and WH conceptualized the research ideas and developed the research designs for the first two studies. SP collected the data. SP analyzed the data and interpreted the data in consultation with SD and WH. SP, CE, and DR conceptualized the research idea for the third study. SP developed the research design and supervised data collection. SP analyzed the data and interpreted the data in consultation with CE and DR. SP drafted the manuscript. SD, CE, DR and WH provided critical feedback on the manuscript. SP revised the manuscript in consultation with SD, CE, DR and WH. DR provided final approval of the version to be published.

Abstract

Objective: Giving in to food temptations is typically labeled as self-regulation failure. However, when indulgence stems from self-licensing processes, i.e., relying on reasons to justify diet deviations, these instances might actually promote successful goal striving. This research aimed to theoretically define and test under what conditions self-licensing would be considered functional (e.g., when it ultimately serves the long-term goal of weight control) and dysfunctional (e.g., when it threatens successful goal striving).

Method: First, a pool of items reflecting functional and dysfunctional ways of self-licensing was tested and representative items were selected (Study 1; N = 194). Next, their classification was corroborated by examining the associations with indices of (un)successful dietary regulation (Study 2; N = 147). Finally, it was tested whether (dys) functional self-licensing predicted unhealthy snack intake, by means of letting participants keep an unhealthy snack diary (Study 3; N = 54).

Results: The theorized distinction was confirmed, and the obtained correlational patterns supported the proposed (dys)functionality of the two types of self-licensing. Importantly, results showed that dysfunctional self-licensing predicted higher snack intake, whereas functional self-licensing predicted lower snack intake.

Conclusion: The present studies provide evidence for the existence of two types of self-licensing, and thereby contribute to theoretical development.

Giving in to temptations, like eating a bar of chocolate after a long day's work, is often perceived as self-regulation failure: the inability to control one's behavior in line with long-term goals such as maintaining a healthy body weight. Dominant accounts of self-regulation failure are capacity-based explanations such as ego-depletion (Baumeister, Bratslavsky, & Muraven, & Tice, 1998). From this general perspective, self-control is a limited capacity that may be temporarily or chronically depleted, leaving the individual with low ability to self-regulate in control-demanding circumstances. For instance, after a long day's work, there might not be enough self-control resources left to resist that chocolate bar. More recently, however, motivational explanations have received renewed attention in models of self-control failure (e.g., Inzlicht, Schmeichel, & MaCrae, 2014; Kotabe & Hofmann, 2015). Rather than assuming that people may not always be *able* to control themselves, it is proposed that oftentimes, people may not be *willing* to control themselves anymore. A particularly prominent motivational explanation is provided by the justification-based account of self-regulation failure (De Witt Huberts, Evers, & De Ridder, 2014a), stating that failure could also stem from deliberately deciding to (temporarily) abandon one's long-term goals by employing justifications to license this goal violation. When taking this self-licensing perspective, it could be that a long day's work is used as a compelling justification to indulge in chocolate (e.g., 'I deserve it'). Importantly, compared to the prevailing capacity-based account of self-regulation failure, this perspective holds different implications for the (dys)functionality of indulgence for successful weight management in the long run. In the present research, we posit that instead of threatening the long-term goal of weight control, indulgence stemming from self-licensing may also support future goal attainment. Specifically, we theoretically define and test under what conditions self-licensing can be considered functional and dysfunctional for successful goal striving.

Whereas self-control failure has typically been theorized to be the result of impulses and reward-related processing (Hagger, Wood, Stiff, & Chatzisarantis, 2010; Hofmann, Friese & Wiers, 2008), self-licensing is suggested to be a more deliberate process (De Witt Huberts, Evers, & De Ridder, 2014b; see also Hofmann & Van Dillen, 2012). This is an important distinction, as these deliberations to give in to food temptations could just as well be part of a self-regulatory strategy. For example, a dieter can justify having a bar of chocolate after a long day's work by considering that this might prevent cravings from turning into uncontrollable urges (that potentially make the damage even worse). Nonetheless, in the self-licensing literature giving in to food temptations is usually labeled as self-regulation failure, which at first sight seems logical as the term 'temptation' implies the presence of a conflicting goal. However, it thereby (unintentionally) fosters dichotomous "black-and-white" thinking about dieting. That is, all diet violations are seen

as threats to the attainment of the long-term goal of maintaining or reaching a healthy body weight, and should therefore be prevented. Consequently, there seems to be little consideration of instances in which giving in to temptation may actually promote successful goal striving. Specifically, in the long term, allowing oneself the occasional diet violation may be a better strategy than aiming for complete control over one's eating behavior. While many popular diets already acknowledge this notion by incorporating "cheat days" into their regime, and evidence that flexible diets result in better outcomes than more rigid diets (e.g., Coelho do Vale, Pieters, & Zeelenberg, 2016; Westenhoefer, Stunkard, & Pudel, 1999), this has not led to a more nuanced definition of self-licensing.

Following this reasoning, there seems to be two sides to self-licensing. On the one hand, self-licensing could simply be people "tricking" themselves that it is okay to indulge, which could be considered dysfunctional when this occurs too easily or too often. On the other hand, self-licensing could also have functional qualities, when it supports diet adherence and results in a positive net effect in the long run in terms of dietary success. While both ways of self-licensing lead to indulgence, they nonetheless have quite different implications. Hence, an important question that arises is how we can identify under what conditions it is functional to license indulgence, in terms of ultimately serving the long-term goal to control or lose weight; and under what conditions self-licensing indeed threatens successful goal striving. Accordingly, the purpose of the present studies is to define two types of self-licensing, and to corroborate this theoretical distinction between functional and dysfunctional self-licensing by examining their associations with indices of (un)successful dietary self-regulation. With this approach, this research aims to further refine the concept of self-licensing and to address its implications for self-regulation success and failure.

Self-licensing strategies

Self-licensing is defined as "the act of making excuses for one's discrepant behavior before actual enactment, such that the prospective failure is made acceptable for oneself" (De Witt Huberts et al., 2014a, p. 121). For eating behavior, discrepant behavior would be (over)eating foods that one would consider unhealthy or fattening. Strictly speaking, one would not classify such discrepant behavior as a diet violation (i.e., self-regulation failure) when it is incorporated in a diet plan (for example, allowing oneself one bar of chocolate/cheat day per week), but for the sake of clarity we will refer to it as such in the remainder of this introduction. This is also based on the assumption that even when

a diet violation like having a bar of chocolate is planned and allowed, one would still be aware of the fact that this is not "standard practice".

The defining characteristic of functional self-licensing is that diet violations are allowed and incorporated into one's diet with the function to promote diet adherence and success in the long run. Hence, diet deviations are perceived as means to an end rather than failure. The defining characteristic of dysfunctional self-licensing is more or less the opposite: the tendency to perceive all diet violations as failure, therefore perceiving these diet slips as threatening rather than potentially promoting successful goal striving. Accordingly, such interpretations have been found to be detrimental to subsequent self-regulation (Zemack-Rugar, Corus, & Brinberg, 2012). This has been particularly observed in restrained eaters, generally known as individuals who aim for strict control over their food intake (Herman & Polivy, 1980). Restrained eating status has been found to reflect concerns about food manifested in eating-related guilt, rather than being indicative of actual intake restriction (De Witt Huberts, Evers, & De Ridder, 2013, see also Mann et al., 2007). Moreover, feelings of guilt have been suggested to promote the "what the hell effect": when dieters decide that it does not matter anymore what they will consume that day once they have broken their diets (Polivy & Herman, 1985).

Evidence that affirms the potential functionality of self-licensing comes from research aiming to validate subscales measuring rigid and flexible control of eating behavior.[1] Westenhoefer et al. (1999) found associations between rigid control, characterized by a dichotomous, all-or-nothing approach to dieting, and a higher Body Mass Index (BMI), higher self-reported energy intake and lower weight-loss success. Flexible control on the other hand, reflecting a more graduated approach where "forbidden foods" are allowed (although in limited qualities), was associated with lower BMI, lower energy intake and higher probability of successful weight reduction.[2] These findings suggest that some self-licensing of diet violations leads to better diet outcomes. However, it should be noted that the selection of items making up these scales was based on the correlation of each item with disinhibition, as measured by another subscale. In addition, the rigid subscale items seem to reflect failed attempts at weight control in the past, which may not necessarily represent rigid control. As a potential result of how the scales were constructed, the findings could not be replicated in a later study by Smith, Williamson, Bray, and Ryan (1999).

Other findings that suggest that some self-licensing of diet violations lead to better outcomes come from Coelho do Vale et al. (2016), who showed the benefits of incorporating moments of indulgence into one's diet, referred to as 'intermittent goal

[1] The flexible and rigid control of eating behavior subscales are part of the cognitive restraint scale of the Three Factor Eating Questionnaire (TFEQ) developed by Stunkard and Messick (1985).

[2] These results were obtained with the short 7-item versions of the rigid and flexible control scales.

striving', compared to straight and rigid goal striving. According to the authors the key to this approach is that these moments are planned, which they manipulated by providing participants with a weekly diet in which they either were allowed to eat 1,500 kcal for seven days in the rigid goal striving condition, or 1,300 kcal for six days and 2,700 kcal on the seventh day in the intermittent goal striving condition (summing up to 10,500 kcal in both conditions). In two studies it was found that intermittent goal striving helped participants to maintain self-regulatory resources, motivation and positive affect, while a drop in these measures was found for participants in the straight goal striving condition. Moreover, when participants were directly asked if they would prefer intermittent or straight goal striving for a personally relevant goal, they indicated that they believed intermittent goal striving would make them more motivated and overall that it would be more helpful for goal attainment. Accordingly, it was concluded that "…it can be good in the long-run to behave badly in the short-run, when this is part of the plan" (p. 26).

To successfully promote goal striving, the permission for diet violations evidently needs to be within certain boundaries. When individuals deviate from their diet too quickly or too often, the scales can easily tip in the wrong way. Thus, when it comes to self-licensing, it is important to strike a good balance between controlling one's eating behavior and permitting indulgence. Not surprisingly, self-control, defined as the ability to override or change one's inner responses, has been found to play a key role in the process of balancing between opposing goals (Hofmann, Luhmann, Fisher, Vohs, & Baumeister, 2014). Not only does high self-control support the effective management of conflicting goals, like deciding when to pursue what goal and when to switch between goals, this successful balancing of goals in turn predicted high life satisfaction. So, as for virtually all forms of behavior contributing to a successful and healthy life (De Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012), a certain degree of self-control may also be necessary for self-licensing to be functional.

From the large body of literature on self-regulation, it seems evident that people are not able to always control their eating behavior (e.g., Hofmann, Rauch, & Gawronski, 2007; Johnson, Pratt, & Wardle, 2012; Stroebe, Mensink, Aarts, Schut, & Kruglanski, 2008). In fact, despite good intentions the occasional failure to act in line with one's goals is inevitable (Baumeister & Heatherton, 1996). Hence, it is not a matter of whether people indulge, but more a question of how these indulgent moments are incorporated into one's diet. More specifically, whether self-licensing is detrimental to healthy eating behavior may be dependent on how (flexible vs. rigid), when (planned or unplanned), why (means to an end or solely hedonically motivated), and to what extent (balanced vs. unbalanced) an individual allows him or herself to indulge in unhealthy foods.

The Present Studies

The aim of the present studies was to verify the theoretical distinction between two types of self-licensing, so-called functional and dysfunctional self-licensing, and to examine whether these are differentially associated with indices of dietary self-regulation. The first two studies were conducted through Amazon's Mechanical Turk (MTurk), an open online marketplace that can be used for web-based data collection (Buhrmester, Kwang, & Gosling, 2011). In Study 1, an item pool was constructed containing items that were expected to be representative of functional and dysfunctional self-licensing. The items best representing the two hypothesized types of self-licensing were selected and tested again in Study 2, in which indices of dietary self-regulation (e.g., trait self-control, restrained eating, dietary success; see Measures for how each index represents (un)successful dietary self-regulation) were also examined in order to corroborate the previously established classification. It was expected that functional self-licensing would be associated with successful dietary self-regulation, whereas dysfunctional self-licensing would be associated with unsuccessful regulation of eating behavior. The aim of Study 3 was to extend the indices of (un)successful dietary regulation to actual eating behavior. By having participants keep an unhealthy snack diary, we tested the hypothesis that dysfunctional self-licensing would be predictive of higher snack consumption, whereas functional self-licensing would predict lower consumption of unhealthy snacks. In addition, Study 3 provided the opportunity to see whether the associations obtained in Study 2 could be replicated, albeit in a smaller sample.

In Study 1 and 2 that focused on obtaining representative items to measure (dys)functional self-licensing, only participants who indicated having any experience with dieting were included in the final samples, as the presented items pertained to dieting behavior. Participants were informed that 'dieting' referred to "following the (healthy) eating rules that you have set for yourself". This was done in order to avoid the misinterpretation that dieting meant following a prescribed diet (e.g., Atkins), and to avoid limiting the present examination of dieting to the sole purpose of losing weight. In addition, 'bad foods' were defined as "foods that you would consider unhealthy and/or fattening", to use this term to refer to foods that —strictly speaking — would indicate deviations from dieting, but not necessarily self-regulation failure.

Study 1

Methods

Participants. Two-hundred-and-one participants completed the survey. For a principal axis factor analysis a sample size of 200 is generally considered "fair" (Comrey & Lee, 1992 as cited in Tabachnick & Fidell, 2007). Participants who indicated not having any experience with dieting ($n = 7$) were removed from further analyses. This resulted in a final sample of 194 participants (62% male), with a mean age of 35.13 years ($SD = 11.25$; range 18-70) and a mean BMI of 24.95 ($SD = 5.40$; range 16-48).[3]

Procedure. Participants were invited to fill out a survey on eating behavior. After providing informed consent, demographics (gender, age, occupation, work hours per week, household composition) were assessed. Next, participants provided information on their weight and height and they indicated on 7-point scales (1 = *Not at all*; 7 = *Very much*) whether they had experience with dieting, how successful they felt when it came to adhering to their diet and whether they were currently trying to lose weight or eat (more) healthily. Subsequently, participants received a list of 52 items (presented in random order) pertaining to functional and dysfunctional self-licensing, and indicated how much each statement applied to them on scales ranging from 1 (*Does not apply to me at all*) to 7 (*Totally applies to me*). Upon completion, participants were thanked and received $0.50 on their account.

Self-licensing items. Item construction and classification was guided by theoretical considerations. As outlined above, functional and dysfunctional self-licensing is proposed to be dependent on how (flexible vs. rigid), when (planned vs. unplanned), why (means to an end vs. solely hedonically motivated), and to what extent (balanced vs. unbalanced) an individual allows oneself to deviate from one's diet. The items were carefully constructed in order to reflect these defining differences. Accordingly, 27 items that reflected dysfunctional ways to allow oneself for eating unhealthy foods were constructed. These described giving in to food temptations in response to feelings of deservingness and entitlement (i.e., 'I reward myself with bad foods too easily'), and other behaviors that have previously been suggested to be the result of aversive self-licensing processes (i.e., 'I have a tendency to indulge in bad foods "one last time" before I start eating healthy'; Urbszat, Herman, & Polivy, 2002). In addition, 25 items that reflected functional

[3] Not all participants seemed to have provided reliable data on their weight and height, potentially by not following the pre-specified measurement units, resulting in extremely low (< 16) or high BMIs (> 50). These scores were removed from the analyses. The provided BMI data is based on $n = 179$ in Study 1, $n = 137$ in Study 2, and $n = 53$ in Study 3.

ways of incorporating unhealthy foods into a diet were developed. These represented allowing oneself the occasional treat to support dietary success in the long run (i.e., 'To adhere to a healthy diet for a long period of time, it is important that I allow myself an occasional treat').

Results

Descriptives. See Table 1 for means and standard deviations of the following variables: experience with dieting, feelings of dietary success, trying to lose weight, and trying to eat healthy. On average, participants reported working for 38.36 hours a week (*SD* = 15.63), in various professions (e.g., construction, education, business). They further reported the following household compositions: couple living with one or more children (33.5%), single person living alone (23.7%), couple living alone (16.5%), living with friends or relatives without children (11.3%), single person living with one or more children (5.7%), unrelated adults living without children (4.6%), and 'other' (4.6%).

Table 1. *Means and Standard Deviations for Descriptive Variables Measured in Study 1, 2, and 3*

	Study 1		Study 2		Study 3	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
Experience with Dieting	5.04	1.42	5.22	1.43	-	-
Feelings of Dietary Success	4.63	1.52	4.67	1.42	-	-
Diet Importance	-	-	5.39	1.26	-	-
Diet Motivation	-	-	5.22	1.28	-	-
Trying to Eat Healthy	5.24	1.52	5.63	1.33	5.20	0.92
Motivation to Eat Healthy	-	-	5.48	1.45	5.15	1.22
Trying to Lose Weight	3.92	2.03	4.48	2.02	3.94	1.87
Motivation to Lose Weight	-	-	4.42	1.95	3.96	1.81
Concerned with Eating Healthy	-	-	-	-	4.93	1.27
Concerned with Body Weight	-	-	-	-	4.67	1.45

Note. The range of possible scores for all variables is 1-7.

Principal Axis Factor Analysis (PFA). A PFA with Promax rotation was run on the 52 items, as this rotation allows components to be correlated. Inspection of the correlation matrix showed that one item did not have at least one correlation coefficient ≥ 0.3, and was removed. The overall Kaiser-Meyer-Olkin (KMO) measure was 0.87 with individual KMO measures > 0.6. Bartlett's test of sphericity was significant ($p < .001$),

indicating that the data was likely factorizable. PFA revealed ten components that had eigenvalues greater than one, and the scree plot indicated three components. However, only the first two components explained a reasonable amount of the total variance, 23.48% and 14.09%, respectively. In addition, the third component (explaining 8.36% of the total variance) consisted of only three items (based on component loadings > .40) and seemed to measure a different concept. Specifically, it seemed to measure planning and rule setting, and an overall strategic approach to dieting; but these items together did not capture the essence of functional self-licensing. Importantly, the two-component solution met the interpretability criterion. As such, two components were retained.

The selection of items was based on component loadings (> .40), and the absence of problematic cross-loadings (all < .20) and cross-correlations (all < .40). For functional self-licensing this resulted in ten items. For dysfunctional self-licensing, there were nineteen eligible items. To have a balanced questionnaire with an equal number of items for each type of Table 2 self-licensing (preventing an emphasis on dysfunctional self-licensing) ten dysfunctional self-licensing items were selected based on content validity: the authors discussed which items would best represent dysfunctional self-licensing based on our previously established conceptualization, and that together would best cover the defining characteristics of this type of self-licensing. Cronbach's alphas and component loadings of the final items are presented in Table 2.

A mean score was computed for functional and dysfunctional self-licensing. Participants scored 4.58 (SD = 1.07) on functional self-licensing, and 3.95 (SD = 1.31) on dysfunctional self-licensing. A significant but small correlation was found between both components, $r = .16$, $p = .026$.

Correlations. Bivariate correlations with both components, gender, age, BMI, and feelings of dietary success were computed. Functional self-licensing was positively correlated with gender (i.e., being female; $r = .14$, $p = .047$) and feelings of dietary success ($r = .20$, $p < .01$). Dysfunctional self-licensing was negatively correlated with feelings of dietary success ($r = -.29$, $p < .001$), and positively with BMI ($r = .17$, $p = .023$).

Table 2. *Loadings of the Final Items of the Dysfunctional and Functional Self-Licensing Factors for Study 1 and 2*

Factor 1: Dysfunctional self-licensing		Study 1	Study 2
1.	I reward myself with bad foods too easily.	.84	.78
2.	When I want to make up for eating bad foods, I often do not follow up on these intentions.	.79	.75
3.	I am easily persuaded to indulge in bad foods.	.77	.84
4.	When my favorite bad food is on sale, I need to have it.	.76	.73
5.	When I see other people eating bad foods, I feel entitled to do so as well.	.72	.76
6.	I have a tendency to indulge in bad foods "one last time" before I start eating healthy.	.70	.65
7.	When I feel negative, I just eat what I want.	.68	.78
8.	I allow myself to eat bad foods too easily after effortful activities.	.67	.88
9.	When I want to eat bad foods, I search for reasons that allow me to indulge.	.53	.73
10.	During dieting, I often decide spontaneously that it is time for a treat.	.52	.53
	Chronbach's *α*	.90	.93
Factor 2: Functional self-Licensing		**Study 1**	**Study 2**
1.	When I try to stick to a heathy diet, a small portion of bad foods every now and then is enough to keep me motivated.	.85	.81
2.	For me, a healthy diet is only feasible when it includes some bad foods in moderation.	.74	.69
3.	During a diet, I eat bad foods every once in a while; otherwise, I wouldn't be motivated to follow my diet for a longer period of time.	.70	.75
4.	To adhere to a healthy diet for a long period of time, it is important that I allow myself an occasional treat.	.69	.78
5.	I can stick to a healthy diet because I know that I can have some of my favorite (bad) foods every now and then.	.68	.84
6.	Small amounts of bad foods are sufficient to satisfy my cravings.	.55	.84
7.	For me a balanced diet also includes some bad foods in moderation.	.54	.70
8.	I don't feel conflicted about eating bad foods when they are incorporated into my diet plans.	.49	.66
9.	I occasionally satisfy my (bad) food cravings in order to stick to a healthy diet the rest of the time.	.45	.61
10.	Even when I watch what I eat, I still enjoy a wide variety of foods.	.42	.56
	Chronbach's *α*	.86	.92

Discussion

The results showed that two components, representing functional and dysfunctional self-licensing, could be extracted. The associations between functional self-licensing and feelings of dietary success, and between dysfunctional self-licensing and lower feelings of dietary success and higher BMI already provide some indication that these components are labeled correctly. In Study 2, this differentiation between functional and dysfunctional self-licensing will be further corroborated by examining its associations with additional indices of (un)successful dietary self-regulation.

Study 2

In Study 2 the twenty selected items were tested again, and an item structure differentiating between functional and dysfunctional self-licensing was expected. The main goal was to find additional support for these two types of self-licensing by further assessing associations with indices of (un)successful dietary self-regulation. First, it was expected that dysfunctional self-licensing would be associated with indices of unsuccessful dietary regulation. These included restrained eating (Herman & Polivy, 1980), rigid control of eating behavior (Westenhoefer et al., 1999) and diet balance discrepancy (i.e., a difference between ideal and actual balance between dieting and "just eating what you want"; adopted from Hofmann et al., 2014; Study 3). Second, it was expected that functional self-licensing would be associated with indices of successful dietary regulation. These included trait self-control (Tangney, Baumeister, & Boon, 2004), (feelings of) dietary success (Fishbach, Friedman, & Kruglanski, 2003), flexible control of eating behavior (Westenhoefer et al., 1999), and diet balance satisfaction (i.e., satisfaction with the actual balance between dieting and "just eating what you want"; Hofmann et al., 2014). Logically, the (dys)functionality of each type of self-licensing can also become apparent in negative associations. For example, it can also be expected that dysfunctional self-licensing is negatively associated with feelings of dietary success.

Methods

Participants. One-hundred-and-fifty-two participants completed the survey. A power analysis (G*power; Faul, Erdfelder, Lang, & Buchner, 2007) revealed that in order for small to medium effects ($r = .25$) to be detected, with power ($1 - \beta$) set at 0.80 and $\alpha = .05$, two-tailed, a minimal sample size of 120 was required. Again, participants who indicated not having any experience with dieting ($n = 5$) were removed from further analyses. This resulted in a final sample of 147 participants (48% male), with a mean age of 36.27 years ($SD = 10.34$; 22-70) and a mean BMI of 29.81 ($SD = 6.89$; range 16-48; see Note 3).

Procedure. Participants were invited to complete an online survey on eating behavior. After providing informed consent and demographics (similar to Study 1), the following measures and items were assessed (in random order): the functional and dysfunctional self-licensing items, trait self-control, restrained eating, dietary success, rigid and flexible control of eating behavior, several items on diet and healthy eating goals, and items on balancing between following your diet and "just eating what you want" (see Measures). After completing the survey, participants were thanked and received $1.55 on their MTurk account.

Measures. All scales showed sufficient internal consistency, see Table 3 for reliability coefficients.

Table 3. *Correlations of Functional Self-Licensing and Dysfunctional Self-Licensing with Eating Behavior Related Variables for Study 2 and 3*

Variable	α		M (SD)		Functional Self-Licensing r		Dysfunctional Self-Licensing r	
General								
Gender (0 = male; 1 = female)	-	-	-	-	.27**	-	.09	-
Age	-	-	36.27 (10.34)	23.02 (4.35)	.05	-.08	-.07	-.12
Self-licensing								
Functional Self-licensing	.92	.70	4.70 (1.21)	4.56 (.80)	-	-	.32***	.01
Dysfunctional Self-licensing	.93	.87	3.78 (1.45)	4.12 (1.19)	.32***	.01	-	-
Indices of successful self-regulation								
Trait Self-Control	.89	.85	3.47 (.76)	3.18 (.67)	-.05	.05	-.62***	-.59***
Dietary Success	.74	.61	4.03 (1.27)	3.96 (1.14)	.07	.35*	-.56***	-.51***
Flexible Control	.81	.70	7.63 (3.24)	5.44 (2.59)	.16†	.13	-.09	-.20
Diet-Balance Satisfaction	-	-	4.40 (1.58)	4.28 (1.64)	.11	.51***	-.49***	-.31*
Body Mass Index (BMI)	-	-	29.81 (6.89)	22.14 (3.11)	.03	-.02	.34***	.08
Indices of unsuccessful self-regulation								
Snack Intake	-	-	-	306 (152)	-	-.27*	-	.42**
Restrained Eating	.79	.77	1.74 (.64)	1.31 (.53)	.16†	-.16	.45***	.24†
- concern for dieting	.73	.69	1.74 (.70)	1.50 (.57)	.06	-.21	.46***	.26†
- weight fluctuations	.76	.76	1.73 (.87)	.99 (.80)	.21**	-.06	.27**	.10
Rigid Control	.74	.65	8.25 (3.49)	6.39 (2.99)	.02	-.10	.17*	.11
Diet-Balance Discrepancy	-	-	.71 (1.53)	1.20 (1.50)	.07	-.36**	.17*	.48***

Notes. Results for Study 3 are highlighted in grey; † $p < .08$. * $p \leq .05$. ** $p < .01$. *** $p < .001$.

Descriptives. Participants indicated on 7-point scales (1 = *Not at all*; 7 = *Very much*) whether they had experience with dieting (*experience with dieting*), how successful they felt when it came to adhering to their diet (*feelings of dietary success*), how important they found adhering to their diet (*diet importance*), and how motivated they were to adhere to their diet (*diet motivation*). Diet goal was further differentiated based on the motivation to diet. Therefore, participants reported whether they were currently trying to lose weight (*trying to lose weight*), how motivated they were to lose weight (*motivation to lose weight*), whether they were currently trying to eat more healthily (*trying to eat healthy*), and how motivated they were to eat (more) healthily (*motivation to eat healthy*).

Functional and dysfunctional self-licensing. (Dys)Functional self-licensing was measured with the 20 items established in Study 1, presented in fixed random order. Answers were given on scales ranging from 1 (*Does not apply to me at all*) to 7 (*Totally applies to me*). Mean scores were computed.

Trait self-control. Dispositional self-control, a key variable in any study of behavioral self-regulation research, predicts success in various major life domains (Tangney et al., 2004), as well as successful dietary regulation (e.g., Crescioni et al., 2011). It was measured with the short 13-item Trait Self-Control Scale (Tangney et al., 2004). A sample item is 'I am able to work effectively toward long-term goals'. Answers were given on Likert scales ranging from 1 (*Totally disagree*) to 5 (*Totally agree*). A mean score was computed.

Dietary success. As a more direct measure of dietary success, the Perceived Self-Regulatory Success in dieting Scale (PSRS; Fishbach et al., 2003) was administered. Participants indicated on 7-point scales how successful they are in watching their weight, in losing weight, and how difficult it is for them to stay in shape. A mean score was computed.[4]

Restrained eating. While restrained eating is described as intentionally restricting food intake with the aim of losing or controlling one's body weight, it has been found to be associated with a higher sensitivity to attractive foods (e.g., Papies, Stroebe, & Aarts, 2007; Brunstrom, Yates, & Witcomb, 2004) and a higher susceptibility to overeat

[4] The dietary success measure was not applicable for the whole sample, because some participants indicated that they were not trying nor motivated to lose weight (scores of '1' on measures 'trying to lose weight' and 'motivation to lose weight'). Therefore these correlations are based on $n = 130$ in Study 2 and $n = 48$ in Study 3. It should be noted that the correlational patterns were similar for the complete sample.

(e.g., Fedoroff, Polivy, & Herman, 2003).[5] Therefore, the Revised Restraint Scale (Herman & Polivy, 1980), which consists of two subscales: concern for dieting ('Do you eat sensibly in front of others and splurge alone?') and weight fluctuations ('In a typical week, how much does your weight fluctuate?'), was administered. See Herman and Polivy (1980) for the exact answer scales.

Flexible and rigid control of eating behavior. As stated in the introduction, both flexible and rigid control of eating behavior have been found to be differentially associated with successful dieting (Westenhoefer et al., 1999). The 12-item flexible control and 16-item rigid control subscales were used to measure these control dimensions of diet restraint (Westenhoefer et al., 1999). Example items are 'If I eat a little bit more on one day, I make up for it the next day' (flexible control) and 'I count calories as a conscious means of controlling my weight' (rigid control). For both scales, a mean score was computed. See Westenhoefer et al. (1999) for the exact answer scales.

Diet-balance discrepancy. Dieters generally experience a conflict between the goals of eating enjoyment and of weight control (Stroebe et al., 2008). Ideally, there would be an optimal balance between these goals, where they are both pursued but not to the extent that one goal interferes with fulfilling the other. As functional self-licensing involves incorporating diet violations in one's diet, it was expected that this would result in a smaller discrepancy between how much participants adhere to their diet and how much they ideally would like to adhere to their diet (Hofmann et al., 2014; Study 3). Participants were asked 'Think back to this past week. How much did you follow your diet versus just eating what you want?' (*current diet balance*) and 'Next, think about what for you would ideally be the best balance between following your diet and just eating what you want?' (*ideal diet balance*). Answers were given on scales ranging from 1 (*Always followed diet*) to 7 (*Always just ate what I wanted*). Answers were reverse scored, so that higher scores indicated more diet adherence. A diet balance discrepancy score was computed by subtracting participants' current balance from their ideal balance. Participants also rated how happy they felt with regard to how they balanced the conflict between following their diet and just eating what they want, on a on a scale ranging from 1 (*Not at all happy*) to 7 (*Very happy*).

[5] These associations were found when restrained eating was measured with Revised Restraint Scale (Herman & Polivy, 1980), which is also used in the current study. Other measures of restrained eating have found associations with successful caloric restriction (see Johnson et al., 2012 for a review).

Results

Descriptives. See Table 1 for means and standard deviations. With respect to diet balance, participants scored 4.53 (*SD* = 1.41) on ideal diet balance and 3.82 (*SD* = 1.39) on current diet balance. A paired-samples *t*-test showed that the difference between participants' ideal and current diet balance was significant, t (146) = -5.68, $p < .001$. On average, participants reported working for 36.09 hours a week (*SD* = 14.97), in various professions (e.g., construction, education, business). They further reported the following household compositions: couple living with one or more children (49.0%), couple living alone (19.7%), single person living alone (19.0%), living with friends or relatives without children (6.1%), single person living with one or more children (4.8%), unrelated adults living without children (.7%), and 'other' (.7%).

Principal Axis Factor Analysis (PFA). A PFA was performed on the self-licensing items to verify the expected two-factor structure. Bartlett's test of sphericity was significant ($p < .001$), with an overall KMO of .91 and all individual KMO measures > .8. PFA revealed two components that had eigenvalues greater than one, and the scree plot indicated two components. These components explained 39.48% and 21.28% of the total variance. The pattern matrix confirmed the two factors (all loadings > .53). Cronbach's alphas and component loadings are presented in Table 2.

Correlations. Correlations between functional and dysfunctional self-licensing and other variables are presented in Table 3. Again, a significant correlation was found between the two licensing components, $r = .32$, $p < .001$. Functional self-licensing was further associated with gender (being female; $r = .27$, $p < .01$), flexible control of eating behavior (marginally; $r = .16$, $p = .056$), restrained eating (marginally; $r = .16$, $p = .059$), and the restrained eating subscale weight fluctuations ($r = .21$, $p < .01$).

Dysfunctional self-licensing was associated with lower trait self-control ($r = -.62$, $p < .001$), lower dietary success ($r = -.56$, $p < .001$), lower diet balance satisfaction ($r = -.49$, $p < .001$), and higher scores on BMI ($r = .34$, $p < .001$), restrained eating ($r = .45$, $p < .001$) including both subscales concern for dieting ($r = .46$, $p < .001$) and weight fluctuations ($r = .27$, $p < .01$), rigid control of eating behavior ($r = .17$, $p = .035$), and diet balance discrepancy ($r = .17$ $p = .036$).

Discussion

The results of Study 2 confirmed the two-component structure proposed to represent functional and dysfunctional self-licensing. As expected, these components were again correlated. The further obtained correlations were mostly in line with predictions: whereas dysfunctional self-licensing found its support in significant correlations with indices of unsuccessful dietary regulation, functional self-licensing found its validation in correlations with less indices of successful dietary regulation than could have been expected. Specifically, it was only correlated with flexible control of eating behavior, and this correlation was marginally significant. Furthermore, unanticipated positive correlations were found between functional self-licensing and being female, restrained eating, and the weight fluctuations subscale of the restraint scale. As women have been found to diet more than men (Kiefer, Rathmanner, & Kunze, 2005), and weight fluctuations are most likely the result of dieting behavior, this might suggest that more experience with dieting leads to better self-regulatory strategies.[6] This assumption is further supported by the mean age of the sample. Although the present findings do not fully support the existence of functional self-licensing, the ultimate test remains: to see whether (dys)functional self-licensing is differently associated with actual eating behavior. Therefore, in the next study, a more direct measure of dietary regulation was used by measuring eating behavior in the form of self-reported unhealthy snacking.

Study 3

In this study the (dys)functional self-licensing scales were tested again with a prospective design, to test whether the scales are predictive of self-reported unhealthy snack intake. Participants were asked to fill out a similar questionnaire as in Study 2, measuring indices of (un)successful dietary regulation, and to consequently keep an unhealthy snack diary (Verhoeven, Adriaanse, Evers, & De Ridder, 2012) for the duration of one week. The aim was to test whether higher scores on dysfunctional self-licensing would predict higher snack intake, and that higher scores on functional self-licensing would predict lower snack intake. To further corroborate the importance of the concept of (dys)functional self-licensing, it was deemed essential to demonstrate that the scales were predictive of unhealthy snack intake even when controlled for well-established predictors such as trait self-control (e.g., Crescioni et al., 2011). In addition, this study provided the

[6] A post-hoc analysis confirmed that functional self-licensing was positively associated with diet experience, $r = .21$, $p < .01$.

opportunity to replicate the previously obtained correlations of (dys)functional self-licensing with indices of (un)successful self-regulation in a different sample.

In contrast with the previous studies that were conducted among community samples, in the present study a sample of female students was recruited. The first reason for this is the impossibility to run an online diary study through MTurk. The second reason is that female students have been found to be susceptible to feeling guilty about snacking between meals (Steenhuis, 2009), and such feelings have been suggested to increase self-licensing (Kivetz & Zheng, 2006; Okada 2005).

Methods

Participants. A total of 67 female students participated. A power analysis (G*power; Faul et al., 2007) was conducted for the main goal of the study (to test whether functional and dysfunctional self-licensing were predictive of snack intake) and revealed that in order a medium effect ($f^2 = .15$) to be detected, with power ($1 - \beta$) set at 0.80, $\alpha = .05$, and two predictors, a minimal sample size of 68 was required. Twelve participants did not provide sufficient data; either no snack moments were reported ($n = 7$) or more than one snack diary entry was missed ($n = 5$). Furthermore, one participant was aware of the goal of the study.[7] These participants were removed, resulting in a final sample of 54 participants.[8] These were from different nationalities, but mainly Dutch ($n = 30$) or German ($n = 11$), and had a mean age of 23.02 years ($SD = 4.35$; 18-48) and a mean BMI of 22.14 ($SD = 3.11$; range 16-32; see Note 3).

Procedure. Female students were invited to participate for a study on unhealthy snacking behavior. After applying and filling out an informed consent, they received a link to an online survey. The first two items addressed whether the participant was concerned about healthy eating or their body weight. If both were answered with 'not at all', the survey stopped and participants were thanked and informed that they did not meet the requirements. Participants who were concerned about eating healthily and/or their body weight continued with the survey. This survey included an assessment of demographics

[7] Participants were considered as being aware of the study aim when they mentioned licensing/justifying (unhealthy) snacking, in these or different terms. When this participant remained in the sample ($n = 55$), the correlation between functional self-licensing and snack intake became marginally significant ($r = -.26$, $p = .055$).

[8] Post-hoc power analyses were conducted because the final sample size ($N = 54$) did not meet the sample size requirement. For the first regression analysis, including only functional and dysfunctional self-licensing as predictors, a post-hoc power analysis revealed a power of .96 (given the obtained effect size $f^2 = .33$). For the second regression analysis where we looked at R^2 increase, including three predictors, a post-hoc power analysis revealed a power of .78 (given the obtained effect size $f^2 = .18$).

including gender, age, BMI, and nationality, followed by descriptive measures and the measures that were also included in Study 2: (dys)functional self-licensing, trait self-control, dietary success, restrained eating, flexible and rigid control of eating behavior, and diet balance discrepancy. In addition, participants indicated when they would like to start with the seven-day snack diary. At the end of each day, participants received a link to an online snack diary. There they reported all the unhealthy snacks that they consumed that day. On the last day, this snack diary was followed by a debriefing, in which participants could provide comments and/or ideas about the goal of the study. Upon completing all the parts of the study, participants were debriefed, thanked and reimbursed with 10 euro.

Measures. See Study 2 for descriptions of the following measures: functional and dysfunctional self-licensing, trait self-control, dietary success, restrained eating, flexible and rigid control of eating behavior and diet balance discrepancy. All scales showed sufficient internal consistency, see Table 3 for reliability coefficients. Additional measures are reported below.[9]

Descriptives. Participants were screened for having at least some concerns about eating healthily and/or their body weight. This was done through two items: 'Are you concerned about eating healthily?' and 'Are you concerned about your weight?'. In the survey, participants consequently reported whether they were currently trying to lose weight (*trying to lose weight*), how motivated they were to lose weight (*motivation to lose weight*), whether they were currently trying to eat more healthily (*trying to eat healthy*), and how motivated they were to eat (more) healthily (*motivation to eat healthy*). All answers were given on 7-point scales (1 = *Not at all*; 7 = *Very much*).

Demographics. Participants reported their gender, height and weight (used to calculate BMI), and nationality.

Daily caloric snack intake. Once participants expected not to eat anymore for the rest of the day, they registered all the unhealthy snacks that they had eaten that day. 'Unhealthy snack' referred to anything that is consumed between the main meals of the day (breakfast, lunch, dinner) and is perceived as unhealthy (Verhoeven et al., 2012). In an online snack diary, 13 categories of unhealthy snacks were listed (e.g., cookie, candybar, crisps), including a pre-specified quantity (e.g., small cookie, one scoop of ice cream), and for each category participants could indicate whether and how much they ate of the

[9] For different research purposes, the study included additional measures: snacks were reported on an event-contingent basis, as well as eating-related affect. The results are reported in a different article (manuscript in preparation).

respective snack. Snacks that did not fit in one of the categories could be specified under the additional category 'other'. For this 'other' category participants were asked to be as specific as possible in describing the snack (e.g., brand name) and the consumed quantity. A *mean daily caloric intake* score was calculated by first multiplying each snack portion with its respective caloric value (obtained from Verhoeven et al., 2012 and Netherlands Nutrition Centre), and subsequently dividing the total caloric intake by the number of diary entries.

Results

Descriptives. See Table 1 for means and standard deviations. With respect to diet balance, participants scored 4.41 (SD = 1.56) on ideal diet balance and 3.20 (SD = 1.29) on current diet balance. A paired-samples t-test showed that the difference between participants' ideal and current diet balance was significant, t (53) = -5.91, $p < .001$.

Correlations with indices of (un)successful dietary regulation. Correlations between functional and dysfunctional self-licensing and other variables are presented in Table 3. No significant correlation was found between the two licensing components, r = .01, p = .963. Functional self-licensing was associated with higher dietary success (r = .35, p = .014) and diet balance satisfaction (r = .51, $p < .001$), and lower diet balance discrepancy (r = -.36, $p < .01$). Dysfunctional self-licensing was associated with lower trait self-control (r = -.59, $p < .001$), dietary success (r = -.51, p = .001) and diet balance satisfaction (r = -.31, p = .023), as well as higher restrained eating (marginally; r = .24, p = .077), the subscale concern for dieting (marginally; r = .26, p = .053) and diet balance discrepancy (r = .48, $p < .001$).

Snack intake. A regression analysis was performed with functional and dysfunctional self-licensing added as predictors and snack intake as outcome variable. The model was significant, R^2 = .25, F(2, 51) = 8.37, $p < .001$, adjusted R^2 = .22, with both functional (β = -.27, p = .031) and dysfunctional self-licensing (β = .42, p = .001) as significant predictors.

To test whether (dys)functional self-licensing predicted snack intake when also other predictors are included, first bivariate correlations between snack intake and trait self-control, flexible control, restrained eating (including its subscales concern for dieting and weight fluctuations), and rigid control were computed. Snack intake was only significantly correlated with trait self-control (r = -.36, $p < .01$). A hierarchical regression analysis was performed with snack intake as outcome variable, and trait self-control

added as predictor in Step 1, followed by (dys)functional self-licensing in Step 2. The first model significantly predicted snack intake, $R^2 = .13$, $F(1, 52) = 7.69$, $p < .01$, adjusted $R^2 = .11$, with trait self-control as a significant predictor ($\beta = -.36$, $p < .01$), see Table 4. However, when adding (dys)functional self-licensing as predictors, the model improved significantly with a change in R^2 of .13, $p = .016$ (model $R^2 = .26$, $F(3, 50) = 5.89$, $p < .01$, adjusted $R^2 = .22$) showing that functional self-licensing predicted lower snack intake ($\beta = -.26$, $p = .037$), whereas dysfunctional self-licensing predicted higher snack intake ($\beta = .33$, $p = .033$). Moreover, trait self-control was no longer a significant predictor in this second model ($\beta = -.15$, $p = .331$).

Table 4. *Hierarchical Regression Analysis with Snack Intake as Outcome Variable, and Trait Self-Control and (Dys)Functional Self-Licensing as Predictors*

	B	*SE*	*β*	*p*	*95% CI*		*F*	R^2	Adj R^2
					Lower	*Upper*			
Step 1							7.69**	.13	.11
Trait Self-Control	-81.14	29.26	-.36	.008	-139.8	-22.43			
Step 2							5.89**	.26	.22
Trait Self-Control	-33.55	34.21	-.15	.33	-102.3	35.17			
Functional SL	-49.55	23.15	-.26	.037	-96.05	-3.05			
Dysfunctional SL	42.15	19.23	.33	.033	3.53	80.76			

Note. ** $p < .01$

Discussion

The results of Study 3 are in support of the proposed distinction between functional and dysfunctional self-licensing. The results confirmed that functional self-licensing predicted less unhealthy snack intake whereas dysfunctional self-licensing predicted more unhealthy snack intake. Moreover, this predictive quality of (dys)functional self-licensing was substantiated by the fact that the scales predicted snack intake over and above trait self-control. Also, the obtained correlational pattern with indices of (un) successful dietary regulation was largely in line with expectations and the correlations obtained in Study 2. However, some discrepancies emerged in the sense that earlier obtained correlations were not found in the present sample, and significant correlations were found that were not identified before. These inconsistencies are potentially due to the difference in samples, as this sample was considerably younger and had a substantially lower BMI, lower scores on flexible and rigid control, as well as lower scores on restrained eating, particularly the weight fluctuations subscale. For example, the sample's (average)

healthy BMI might explain the absence of a significant correlation between dysfunctional self-licensing and BMI as well as weight fluctuations. However, the correlations from Study 3 should be interpreted with caution, as the low sample size for conducting correlational analyses prohibits drawing strong conclusions. Nonetheless, the overall correlational pattern is again in support of the distinction between functional and dysfunctional self-licensing.

General Discussion

The present studies were designed to empirically verify the existence of two types of self-licensing based on its potential functionality in promoting successful dietary regulation. First, an item pool was developed based on relevant literature, from which indeed two types of self-licensing could be extracted (Study 1). Next, the labeling of each type as either functional or dysfunctional was corroborated by looking at the correlations with indices of (un)successful dietary regulation (Study 2). Finally, these indices were extended to actual eating behavior (Study 3). The strongest support was found for dysfunctional self-licensing, as it demonstrated most of the expected links with both successful and unsuccessful dietary regulation. The proposed functional type of self-licensing mainly became apparent from its associations with successful dietary self-regulation. However, both types have stood the test of predicting actual eating behavior, which was considered the most important evidence to corroborate the relevance of making a distinction between functional and dysfunctional self-licensing. Especially as these constructs were predictive of snack intake over and above trait self-control, which is one of the key variables of interest in eating behavior and self-regulation research and has been found to be predictive of successful dietary regulation (De Ridder et al., 2012; Tangney et al., 2004, Crescioni et al., 2011). Taken together, the current studies provide suggestive evidence for the importance of differentiating between two types of self-licensing.

Some discrepancies were observed between Study 2 and Study 3 with regard to the obtained associations between (dys)functional self-licensing and indices of (un) successful dietary regulation. More specifically, some correlations that were found in Study 2 were not replicated in Study 3, and vice versa. It should be noted that the low sample size (for correlational analyses) in Study 3 may have contributed to this, but nonetheless it can be questioned whether complete consistency is necessary to draw the conclusion that there are two ways of self-licensing. When the overall correlation pattern of functional self-licensing is contrasted with dysfunctional self-licensing, it is evident in both studies

that one is more related to dietary success than the other. Moreover, differences in sample characteristics are likely to contribute to these discrepancies. The student sample in Study 3 portrayed less problematic dietary behavior than the community sample in Study 2 in the sense that they were not overweight and scored fairly low on restrained eating. It is actually notable that even in a sample that is doing quite well, a distinction between the two types of self-licensing can be observed, especially the differential outcomes in unhealthy snacking. However, because of the differences in sample characteristics, future studies measuring actual eating behavior in relation to (dys)functional self-licensing could benefit from including a community sample to substantiate the current findings and to increase generalizability.

Additional studies are also necessary to verify whether both types of licensing are generally related or not. Whereas an association between the two types was found in Study 1 and 2, this was not found in Study 3. Hence, it remains unclear whether individuals generally only engage in one type of licensing, or whether they can have both tendencies. For now it seems more likely that there is an association between functional and dysfunctional self-licensing, as the first two studies had substantially larger sample sizes, and hence power. In addition, some variability is expected when conducting multiple studies, which might explain the inconsistent non-significant association obtained in Study 3. Overall, additional studies are necessary to provide more conclusive evidence.

While it was not the purpose of the present studies, the items obtained and tested in the present studies might provide a tool to identify (dys)functional licensing tendencies, which could have value for interventions aimed at improving healthy eating habits. Changing unhealthy eating patterns is still one of the major health challenges of today (Malik, Willett, & Hu, 2013), and tapping into self-licensing processes could be a promising intervention strategy especially in light of the results showing that dysfunctional self-licensing was associated with lower dietary success (Study 2 & 3), higher BMI (Study 2) and higher snack intake (Study 3). Importantly, while there have been studies focusing on identifying different types or categories of justifications (Taylor, Webb, & Sheeran, 2013; see also Verhoeven, Adriaanse, De Vet, Fennis, & De Ridder, 2015), very few efforts on developing items to measure self-licensing have been reported. It is therefore recommended to further test the predictive validity of the items that were identified and tested in the present studies, preferably with experimental designs, as the currently employed correlational and prospective designs limit conclusions regarding causality.

Besides the current evidence supporting the proposition that there may be two types of self-licensing based on its functionality in long-term dietary success, there is also the conventional wisdom that complete control over one's eating behavior is

not desirable, let alone possible. People also have enjoyment goals (i.e., indulging in unhealthy but delicious foods) and satisfying these goals can be expected to contribute to life satisfaction. Moreover, eating fulfills an important social function, which can be compromised by never allowing any deviations from one's diet. Thus, from a broader perspective there are reasons to believe that striving for a life free of diet violations would not be conductive to an individual's general well-being.

To conclude, while in the self-regulation literature there seems to be a tendency to label diet violations as failure, the present studies reveal that this is not always warranted. On the contrary, the present studies suggest that diet violations can also portray successful diet self-regulation, as it may function as a means to long-term diet adherence. Then, "licensing" the occasional indulgence might be a better strategy than aiming for complete control over one's eating behavior. To quote Johnson et al. (2012): "A flexible approach to eating may be a factor distinguishing between those who are able to adhere to their diet aims and those who are prone to failure" (p. 668). It is therefore important to further examine the introduced concepts of functional and dysfunctional self-licensing.

6

Summary and general discussion

Acknowledgement of author contributions:
SP is the sole author of this chapter.

Goal violations are often explained in terms of not being able to resist temptations (e.g., Hagger, Wood, Stiff, & Chatzisarantis, 2010; Hofmann, Friese & Wiers, 2008). However, rather than being unable, people may sometimes deliberately choose to temporarily abandon their goals by employing licenses that justify this discrepant behavior. This is referred to as self-licensing, and is driven by self-regulation dilemmas between acting on temptation for immediate gratification (e.g., indulging in tasty foods) and behaving wisely to secure long-term interests (e.g., weight control; De Witt Huberts, Evers, & De Ridder, 2014a). At first sight it seems that self-licensing harms successful goal pursuit, as it makes it easier to choose the indulgent yet ill-advised option. However, to establish whether such justification processes are ultimately harmful or beneficial in the long run, the effects of self-licensing on the ability to deal with repeated confrontations with temptations need to be examined. Especially because theoretically, reliance on self-licensing might go either way and either impair or promote subsequent attempts at self-regulation. Therefore, the overall objective of this dissertation was to explore whether self-licensing has potential benefits for self-regulation over time. A series of empirical studies was conducted to address the research aims resulting from this objective: (1) to corroborate the observation that self-licensing results in immediate self-regulation failure; (2) to examine what happens next by examining subsequent handling of temptations after an initial (un)justified moment of failure; and (3) to see whether distinct ways of self-licensing can be identified that are either helpful or harmful for self-regulation in the long run.

In this last chapter the findings from the empirical studies that were conducted to meet the aforementioned research aims are reflected upon. First, the main findings from the empirical chapters are summarized, followed by a discussion of the theoretical and practical implications. Lastly, the limitations of the present work are addressed, with specific recommendations for future research.

Summary of findings

Chapter 2 described two lab studies and a field study aimed at corroborating the observation that self-licensing leads to an initial moment of self-regulation failure. To that end, the presence of different types of justification cues was manipulated, with justification cues defined as external cues that can function as a reason or excuse for self-gratification. After the manipulation, participants could either eat freely from unhealthy snacks (Study 1 & 2) or pick a snack of their own choosing at a local take-out lunch place (Study 3). As hypothesized, caloric intake (Study 1 & 2) and caloric value of a self-selected

snack (Study 3) was higher for participants in the experimental conditions, who received a justification cue, compared to participants in the control conditions. Taken together, these studies are illustrative of the wide variety in justification cues, and expand on previous research by examining self-licensing effects on actual food consumption (Study 1 & 2) and in a more ecologically valid field setting (Study 3).

Chapter 3 presented two vignette studies that looked beyond initial indulgence and focused on self-licensing effects in a subsequent self-regulation dilemma. The aim was to explore whether self-licensing impairs or promotes subsequent attempts at self-regulation after initial failure. Therefore, the presence of a justification cue was manipulated, by letting participants read a scenario in which they made an initial indulgent choice with a justification (experimental condition) or without (control condition). The scenario then continued with the presentation of a second self-regulation dilemma. It was found that participants in the experimental condition reported lower levels of negative affect (e.g., guilt) associated with the initial indulgence, and were more likely to make a second indulgent choice than participants in the control condition (Study 1 & 2). In Study 2, also the setting of the second dilemma was manipulated, so that both dilemmas were either presented in the same situation (i.e., bakery), or in different situations (i.e., first dilemma was set in a bakery, second dilemma in a supermarket). For the latter no effect of the justification manipulation on the likelihood of making a second indulgent choice was observed. Study 2 further included measures of self-efficacy and motivation, functioning as indicators of perceived self-regulatory ability. The results revealed a trend where self-licensing maintained or even increased levels of self-efficacy regarding dieting, but no effect on motivation was observed. Altogether these findings suggest that self-licensing makes repeated indulgence more likely, but only for dilemmas occurring in the same situation. In addition, the protective effect on self-efficacy points to a potential beneficial effect of self-licensing. It was therefore deemed important to further explore the effects of self-licensing for self-regulation over time with a different research design.

Chapter 4 reported an ecological momentary assessment study designed to more reliably capture how (un)justified temptation enactment affects subsequent enactment. This was done by tracking behavior via smartphones over the course of one week. Every two hours, participants registered the food temptations they experienced (i.e., strength, conflict, resistance, and enactment), license opportunity (i.e., number of available licenses), and perceived self-regulatory ability (i.e., control, motivation, self-efficacy, goal importance). As expected, it was found that self-licensing (partly) resolved the self-regulatory conflict resulting from experiencing food temptations, with most pronounced effects for strong temptations. Although self-licensing theory holds the assumption that self-licensing has the potential to resolve self-regulatory conflict in favor

of the tempting option, this has never been directly tested before. It was also found that high license opportunity was associated with higher perceived self-regulatory ability after low (vs. high) degrees of temptation enactment. At the same time, high (vs. low) license opportunity predicted better handling of subsequent temptations after high degrees of prior temptation enactment. Altogether, these results suggest that self-licensing can support self-regulation after initial failure. Even though the conflict-resolving qualities of self-licensing might only help to maintain self-regulatory ability after minor transgressions, they do seem to promote the handling of subsequent temptations. These findings might be indicative of individual differences in how licensed indulgence and perceptions of self-regulatory ability are responded to.

Chapter 5 described two online studies and a snack diary study that aimed to provide further evidence for the proposition that self-licensing may have adaptive qualities for self-regulation over time, by introducing and validating the concept of functional and dysfunctional self-licensing. Whereas the former ultimately serves the long-term goal of weight control, the latter is mostly hindering successful goal striving. First a set of items was developed to measure functional and dysfunctional self-licensing (Study 1), followed by a verification of these concepts by looking at their associations with indices of (un) successful self-regulation (Study 2) and unhealthy snacking behavior over a one-week period (Study 3). As hypothesized, functional self-licensing was associated with indices of successful self-regulation (Study 2) and predicted lower unhealthy snack intake (Study 3). For dysfunctional self-licensing opposite outcomes were observed: it showed associations with indices of unsuccessful self-regulation (Study 2) and predicted higher unhealthy snack intake (Study 3). Besides the practical value of providing a way to measure (dys)functional self-licensing tendencies, this chapter also emphasizes the prematurity of labeling all goal violating behavior as failure because there can be instances where momentary goal violations actually promote successful goal striving in the long run.

Collectively these studies contributed to the overall research aim of examining whether self-licensing has potential benefits for self-regulation over time. Although self-licensing stimulates initial self-regulation failure, as corroborated by the lab and field experiments (Chapter 2), subsequent goal re-engagement was observed in a momentary assessment study (Chapter 4). In this latter study and two vignette studies (Chapter 3) it was also observed that self-licensing can safeguard perceived self-regulatory ability after indulgent moments. In addition, a snack diary study (Chapter 5) revealed that whether self-licensing supports successful self-regulation in the long run is probably dependent on the distinct way that individuals justify indulgence (i.e., functional or dysfunctional). Altogether, these findings suggest that there is indeed a positive side to self-licensing that becomes apparent when the focus shifts from immediate self-regulation failure to enduring successful self-regulation.

Theoretical implications

When integrating the findings from Chapters 2 to 5, a number of important theoretical implications emerge. The first key contribution of the present dissertation is that it not only corroborates the immediate effects of self-licensing, but that it also extends self-licensing theory by adding predictions about longer-term outcomes. So far, the justification-based account of self-regulation failure (De Witt Huberts et al., 2014a) has remained silent about how self-licensing processes affect goal re-engagement after an initial goal violation. Whereas the vignette studies described in Chapter 3 portray self-licensing as harming further goal pursuit when a second dilemma presents itself in the same setting, by demonstrating that under these circumstances self-licensing makes repeated indulgence more likely, the outcomes from the more ecologically valid momentary assessment study in Chapter 4 paint a different picture. There we see that self-licensing can promote successful handling of subsequent temptations, albeit only after high levels of prior temptation enactment. Goal re-engagement after minor transgressions (i.e., low levels of prior temptation enactment) was unaffected by self-licensing. It is likely that these minor violations are inherently justified ('just a little bite is no problem') and do not need justification as much as more serious violations do. The observed beneficial effects of justifying more elaborate violations can be explained as self-licensing helping to "wipe the slate clean" after an initial moment of indulgence, meaning that this goal violation is set aside and good behavior is continued without looking back to this past transgression. It also supports the proposition that self-licensing is useful in preventing the "what the hell effect", where diet violations are met with even more indulgent behavior because of an all-or-nothing mindset ('now that my diet is blown, there is no point in further restricting myself'; Polivy & Herman, 1985). The divergent outcomes obtained from the vignettes and momentary assessment study are most likely due to the differences in methodological design. In the vignette studies (Chapter 3) a specific justification and setting were provided to participants, that resulted in limited generalizability of the findings. In the momentary assessment study (Chapter 4) real life behavior was followed, providing more externally valid results. Notwithstanding the contribution of Chapter 3 in providing a first test of self-licensing effects in a subsequent self-regulation dilemma, all in all Chapter 4 provides more reliable evidence when it comes to predicting self-licensing effects on subsequent goal striving. Hence, at this point it seems that self-licensing may contribute to successful self-regulation over time by attenuating further indulgence after an initial goal violation. This preliminary conclusion is further strengthened by the identification of a functional way of self-licensing as reported in Chapter 5. There it was observed that it is possible to strategically apply self-licensing, by allowing oneself the occasional indulgence in order

to be able to effectively deal with food temptations at other moments. Accordingly, this so-called functional self-licensing predicted lower unhealthy snack intake as measured over the course of one week. Altogether, these findings suggests that there is indeed a positive side to self-licensing when its aftermath is investigated. By looking beyond initial goal violations and focusing on subsequent goal re-engagement, the present studies were the first to undertake a more holistic view of self-regulation failure when studying self-licensing. As a result, it has become clear that single displays of self-licensing are not necessarily indicative of self-regulation failure. In that way, an important first step has been made in unraveling the effects of self-licensing on successful self-regulation in the long run. Although it may be too early to draw strong conclusions, with additional evidence from future studies the predictions derived from the present work concerning goal re-engagement after initial failure can be accommodated into the self-licensing framework.

Another key contribution of the present work is the identification of two distinct types of self-licensing (Chapter 5), so-called functional and dysfunctional self-licensing. The concept of dysfunctional self-licensing fits self-licensing theory as we know it; employing justifications with the sole purpose of making an upcoming long-term goal violation acceptable. The concept of functional self-licensing, however, exposed another purpose that has not been addressed before. That is, justifications can be strategically employed so that it not only makes un upcoming goal violation acceptable, but also serves as a means to an end for successful self-regulation. This is based on the idea that aiming for strict control over one's behavior is an unrealistic endeavor, so knowing that goal violations are inevitable, it may be better to intentionally permit the occasional indulgence. Chapter 5 investigated these concepts of functional and dysfunctional self-licensing in the context of dieting, and showed that when diet violations are allowed and incorporated into one's diet plans with the function to promote diet adherence in the long run (functional self-licensing), this indeed predicted lower unhealthy snack intake over the course of one week. In contrast, when allowance of diet violations through self-licensing was merely driven by hedonic considerations (dysfunctional self-licensing), this predicted higher unhealthy snack intake. Interestingly, many popular diets already acknowledge the need for "letting go" every once in a while, and prescribe "cheat days" where a healthy diet regimen is temporarily abandoned. Illustrative is also the "80/20-rule" where 80% of a diet consists of healthy foods, whereas the remaining 20% can be unhealthy indulgent choices (e.g., Cutter, 2012; Macri, 2015). Expanding self-licensing theory with the concept of functional self-licensing helps to provide scientific evidence for these flexible diet approaches. More importantly, the identification of a functional way of self-licensing moves self-licensing research forward by fostering a re-interpretation of the adaptiveness of self-licensing. This means that instead of positioning self-licensing as route to self-regulation failure,

as is done in the current literature, a more nuanced perspective can be developed that acknowledges functional self-licensing and its positive effects on self-regulatory success.

An additional novel insight is that the potential beneficial effects of self-licensing may rely on its capacity to preserve perceived self-regulatory ability in spite of the occasional failure, as has been observed in two vignette studies (Chapter 3) as well as a momentary assessment study (Chapter 4). Perceived self-regulatory ability was conceptualized as the self-perceptions regarding one's capacity to deal with self-regulatory challenges, and was measured with indices of self-efficacy, motivation, and goal importance (Nguyen & Polivy, 2014). Whereas previous studies on dieting have found that goal violations (i.e., diet lapses) are associated with diminished self-efficacy (Grilo, Shiffmann, & Carter-Campbell, 1994; Carels et al., 2001; Carels, Douglass, Cacciapaglia, & O'Brien, 2004; McKee, Ntoumanis, & Taylor, 2014) and motivation (Polivy & Herman, 1985), the present results suggest that these negative consequences depend on whether this violation was justified or not. Specifically, it seems that self-licensing helps to keep perceptions of being a good "self-regulator" intact and sustains self-efficacy and motivation. It should be noted, however, that the momentary assessment study (Chapter 4) showed that these positive effects of self-licensing only applied to minor (vs. more serious) goal violations. Perhaps, the degree to which a goal is violated constitutes an important boundary condition, meaning that there is a point of failure where justifications do not have enough power to soften the blow to one's perceived self-regulatory capacity. In the vignette studies (Chapter 3), however, such a boundary condition was not observed. Hence, there is room to further explore the precise circumstances that determine whether self-licensing is beneficial for preserving perceived self-regulatory ability. This is also relevant considering that the momentary assessment study (Chapter 4) demonstrated that these self-perceptions translated into more successful handling of temptations. So in addition to showing that self-licensing can benefit subsequent goal striving, this dissertation also provides suggestive evidence for how these effects may come about.

Another important theoretical contribution is the direct evidence for the conflict resolving qualities of self-licensing. Theoretically, when acting on a current desire (e.g., eating delicious but fattening foods) conflicts with a long-term goal (e.g., losing weight), this self-regulatory conflict can be resolved in favor of immediate gratification by employing justifications (e.g., De Witt Huberts et al., 2014a; Taylor, Webb, & Sheeran, 2013). However, this assumption has been mainly derived from behavioral outcomes showing that self-licensing makes the pursuit of short-term goals more likely, while direct empirical support is lacking. The momentary assessment study described in Chapter 4 is the first to provide an actual observation of self-licensing lowering self-regulatory conflict. Specifically, it was found that self-licensing is especially helpful for downplaying conflicts

instigated by strong (vs. weak) temptations, implying that those temptations that imposed the biggest threat to a long-term goal were also most prone to justification. This fits earlier demonstrations that strong temptations are more effective in activating self-licensing processes (De Witt Huberts, Evers, & De Ridder, 2014b), and adds to the self-licensing literature by revealing that this activation subsequently results in lower perceived conflict between competing goals.

A more general contribution that is not necessarily limited to the self-licensing literature is that the current work emphasizes the importance of looking beyond immediate outcomes when it comes to self-regulatory behaviors. Because self-regulation is about the attainment of long-term goals, it inherently involves repeated performances of goal-conforming behavior. One running exercise does not prepare you for the goal to run a marathon, and resisting one cookie does not result in the desired weight loss. However, in studies focusing on single outcomes such behaviors are often labeled as successful self-regulation, just as goal violating behaviors are said to be demonstrations of self-regulation failure. The present dissertation showcases that this limited view can lead to short-sighted conclusions regarding the adaptiveness of certain behaviors. The danger of drawing conclusions based on momentary displays of behavior is also aptly illustrated in the literature on hyperopia (e.g., Haws & Poynor, 2008; Shu & Gneezy, 2010). Hyperopia is conceptualized as a reverse self-control problem characterized by excessive focus on long-term goals, leading people to people "under-indulge" and constantly restrain themselves to the point where they regret missing out on the pleasure of life. Although it stimulates productive behavior and the attainment of goals, it can –albeit unintentionally –negatively impact higher-order life goals by harming people's emotional and physical well-being (Kivetz, Meng, & He, 2018). Thus, behaviors that might seem adaptive or maladaptive can actually have opposite long-term effects when spillover effects to subsequent behavior or behavioral patterns over longer periods of time are examined.

Practical implications

Besides the theoretical implications of the present research, there are also important practical implications to consider. Because the current work was conducted in the domain of eating behavior, these mainly apply to interventions aimed at improving healthy eating patterns. Innovative intervention methods are highly needed in light of the so-called "obesity epidemic" (Church & Martin, 2018), characterized by increasing rates of overweight and obesity (World Health Organization, 2018). Tapping into self-licensing processes can be a promising new approach for dealing with this issue. Especially

considering that ample research has been devoted to techniques for strengthening impulse control (e.g., Beard, Sawyer, Hofmann, 2012), while the scientific study of treatment applications focusing on self-licensing tendencies has yet to begin.

An important insight with practical value is that self-licensing is not always harmful for a healthy diet. In fact, under specific conditions it may actually support effective self-regulation of eating behavior. The studies on (dys)functional self-licensing (Chapter 5) provide suggestive evidence that the adaptiveness of justifying diet violations is dependent on how such violations are incorporated into one's diet. When the occasional allowance of (planned) indulgent behavior serves to maintain proper motivation throughout the dieting endeavor, and prevents cravings from turning into uncontrollable binges, it can support long-term diet adherence. By contrast, when indulgence is merely a response to license opportunities or the result of temptation-induced justification, it can endanger the attainment of diet goals. Hence, for the development of interventions that tap into self-licensing processes, it is pivotal to differentiate functional from dysfunctional self-licensing, and to reinforce the former while discouraging the latter.

For example, individuals with a very strict all-or-nothing approach to dieting may benefit from learning that some degree of failure is inevitable. Although strict diets may seem simple in the sense that they provide clear and unnegotiable eating rules, it is practically impossible to always live up to these prescriptions and it can even have adverse effects (as addressed in the introduction of Chapter 5). For these people, it might be worthwhile to realize that they can allow themselves the occasional indulgence without endangering their diet goals through adopting a functional way of self-licensing. Then there are also individuals who already employ self-licensing, but solely in a hedonically motivated and hence dysfunctional way. This evidently requires discouragement rather than reinforcement of self-licensing tendencies. A promising method for doing so is the formation of implementation intentions. These are simple if-then plans that specify when, where, and how the intention for goal-directed behavior is performed ('If I am in situation X, then I will perform behavior Y'; Gollwitzer, 1999). The "if-part" functions as a cue that automatically triggers the desired behavior, i.e., the "then-part". Importantly, these plans can also override existing cue-response links by replacing an unwanted response (e.g., indulging in pizza) with a wanted response (e.g., eating salad; Holland, Aarts, & Langendam, 2006; Adriaanse, De Ridder, & De Wit, 2009). Originally, implementation intentions have been successfully applied to situational cues specifying *when* or *where* the wanted behavior needs to be performed ('If I am at the lunch buffet, I will take a salad'; Gollwitzer & Sheeran, 2006). However, they have also been found to be effective in facilitating goal striving in response to motivational cues that specify the reason, the *why*, for certain behavior (Adriaanse et al., 2009). This makes implementation also suitable

for dealing with dysfunctional self-licensing, as dysfunctional justifications for indulgence can then be linked to a healthier alternative response ('If I want to use my sadness as an excuse to snack, I will eat an apple'). Moreover, there is preliminary evidence that also more general implementation intentions ('If I am tempted to eat [a specific unhealthy snack], then I tell myself no excuses') can be helpful in limiting the consumption of the respective snack (Taylor, 2013). However, such a general implementation should be used with caution because it is not clear yet whether it may have disadvantageous effects for individuals who mainly engage in functional self-licensing. Overall, with further empirical testing, implementation intentions may turn out to be an effective way to deal with dysfunctional self-licensing tendencies.

Another valuable insight is that it is crucial to adopt a holistic perspective on self-regulation failure when self-licensing is the focus of treatment. Whereas self-licensing research so far gives the impression that justifying indulgence is harmful for successful self-regulation, the present work encourages to look further than single instances of self-regulation failure. Instead, the sequence of (indulgent) food choices should be examined before conclusions can be drawn about the extent to which self-licensing ultimately harms weight control. It is evident that overweight and obesity are the result of repeated displays of indulgent behavior. Therefore it is important to acknowledge that the immediate effects of self-licensing (i.e., indulgent choices) are not necessarily representative for how subsequent self-regulatory challenges are handled. In a similar vein, from a self-licensing perspective single displays of self-regulation success like refraining from opportunities to indulge are not always indicative of actual goal progress. For example, in the Netherlands a well-known public health intervention is the "balance day" ("balansdag"; Wammes, Breedveld, Kremers, & Brug, 2006). This intervention prescribes to regularly have a day on which caloric intake is moderated and physical exercise is increased, in order to compensate for overeating on other days. Although people may be successful in restricting themselves for a day, this balance day holds the danger of functioning as a license for indulgence on the following day (Mukhopadhyay, Sengupta, & Ramanathan, 2008; Mukhopadhyay & Johar, 2009). In addition, merely intending or planning to have a balance day later can also allow for overeating now, because it will be compensated for in the future (Kronick & Knäuper, 2010; Urbszat, Herman, & Polivy, 2002). When the amount of overeating before or after the balance day is not entirely compensated for by the balance day itself, the net result is a surplus of consumed calories, which is the direct opposite of that the balance day intervention is set out to achieve. Hence, also for interventions that do not specifically focus on self-licensing, it can be informative to take justification processes and its longer-term effects into account.

A more concrete practical contribution is the set of items to measure functional and dysfunctional self-licensing tendencies (Chapter 5). In order to distinguish between the different ways of self-licensing, it is useful to have the means for doing so. For individuals in need of changing their eating behavior, identifying and recognizing their (dys)functional self-licensing tendencies may already constitute an important first step in this process. For health practitioners, it might prove to be helpful in deciding what kind of treatment method to provide. It should be noted, however, that additional scale development is warranted before actual utilization of the (dys)functional self-licensing items in practice. Although the first results are promising, the psychometric properties need to be further validated. With continued research the precise utilizations may also become more clear and hence effective.

In sum, the present findings may contribute to the development of targeted interventions aimed at tackling dysfunctional self-licensing tendencies. Tapping into this reasoned and deliberate route to self-regulation failure constitutes a promising starting point for the development of behavior change techniques to alter unhealthy eating patterns. This is a much welcomed new approach in the current food environment where the ample opportunity to indulge poses a great health challenge to both the individual and society as a whole.

Limitations and future directions

Although this dissertation holds novel insights that are helpful in moving self-licensing theory forward and provides several leads for practical knowledge utilization, there are some limitations that need to be attended to in future studies. First and foremost is the fact that the present work does not provide insight in how self-licensing makes upcoming failure acceptable. It is likely that there can be different steps involved in this process, and several routes have been proposed that all lead to resolving a self-regulatory dilemma in favor of the tempting option in a satisfactory manner (Adriaanse & Prinsen, 2018; De Witt Huberts et al., 2014a). A dominant account, for example, is *reinforced self-concept*. By performing "good" behavior, like acting altruistically or refraining from unhealthy snacking, a positive self-concept is reinforced. Subsequently, ensuing "bad" behavior becomes less threatening as there is good behavior to buffer its negative impact on one's self-perceptions. So, eating a cookie becomes more acceptable after previously resisting a cookie, as the latter has proven that you are able to control yourself. In the moral licensing literature this is known as having "moral credentials" (Monin & Miller, 2001). Specific justification cues that lend itself for reinforcing one's self-concept are recalling

success or high perceived effort (Chapter 2, Study 1 & 2). Another route that has been put forward is *motivated reasoning*. Only here, instead of wanting to preserve a favorable view of oneself, motivated reasoning is about perceiving oneself as a rational person. By employing reasons to justify discrepant behavior, the illusion of acting rationally is maintained, even though the behavior can be considered irrational from an objective perspective. For example, eating pizza and ice cream while being on a diet seems more rational after having first convinced yourself that you burned enough calories in the gym to compensate for this indulgence. Justifications that fit this notion are goal progress (Chapter 2, Study 3) and compensatory intentions (Kronick & Knäuper, 2010). Hence, there can be different roads that lead to indulgence becoming acceptable, and the exact route to which self-licensing effects come about may be dependent on personal characteristics. Some individuals may feel conflicted about indulgence because they have to feel they deserved it, whereas others attach more value to always behaving rationally. These specific motivations to self-license can direct the way in which an upcoming self-regulatory conflict is resolved. At the same time, it is conceivable that the type of license can determine the route to some extent, as some licenses may be more effective in building credentials (e.g., donating to charity), whereas others mainly support the illusion of being a rational person (e.g., planning to compensate for overeating by eating less during a next meal). So, how upcoming goal violations come to be tolerable may be dependent on the type of license, probably in interaction with individual characteristics. Hence, additional work that specifically focuses on the specific self-licensing routes towards acceptable indulgence is highly recommended.

The routes towards acceptable indulgence discussed above fit the premise of this dissertation that self-licensing helps to protect perceived self-regulatory ability. Logically, when keeping positive self-perceptions intact is driving the need to justify upcoming indulgence, it should manifest itself afterwards in preserved believes of being a good "self-regulator". This brings us to the second important limitation, which pertains to the expectation that this preserved self-regulatory ability through self-licensing would subsequently translate into better handling of following encounters with temptations. That is, this hypothesized sequence of events was not statistically tested in one moderated mediation model (i.e., direct effect of (A) prior temptation enactment on (C) subsequent enactment, via mediator (B) self-regulatory ability that is dependent on moderator (D) self-licensing opportunity). Parts of this model were tested separately in the vignette studies (Chapter 3) and momentary assessment study (Chapter 4), but evidence for the full model was not provided. Hence, testing this model in future studies is warranted to provide more conclusive evidence regarding the role of self-regulatory ability in how self-

licensing affects self-regulation over time, preferably with experimental designs that allow for conclusions regarding causality.

Although a key role was assigned to perceived self-regulatory ability, several other mechanisms that may underlie the beneficial effect of self-licensing on self-regulation over time have been posited throughout this dissertation. Whereas Chapters 3 and 4 succeeded in providing initial proof for the existence of such beneficial effects in terms of preserved self-perceptions, there is ample room left for exploring the validity of other possible mechanisms. One particularly noteworthy way in which the beneficial effects of self-licensing may come about is through its affective consequences, as touched upon in the vignette studies (Chapter 3). There it was observed that justified indulgence was associated with lower levels of negative emotions like guilt, shame, and regret. This, in turn, can benefit future attempts at self-regulation because indulgence-related negative affect can escalate into (momentary) full-blown goal abandonment, known as the "what the hell" (Polivy & Herman, 1985) or "abstinence violation effect" (AVE; Marlatt & Gordon, 1980). The maladaptive thought here is that 'because I already failed, there is no point in further restricting myself', probably resulting from a dichotomous, all-or-none thinking tendency when it comes to goal striving. On the other hand, negative affect following indulgence can also motivate attempts to "launder" or "balance out" the respective transgression (e.g., Rabiau, Knäuper, & Miquelon, 2006; Ramanathan & Williams, 2007; Baumeister & Heatherton, 1996). Considering that these are two opposite scenarios, and there is no direct evidence in support of either one or the other, it is worthwhile to specifically examine the role of affect in goal re-engagement after initial indulgence.

Another mechanism worthy of investigation is the proposition that the occasional (licensed) goal violation can replenish the motivation and capacity to adhere to one's goals again. As mentioned in the beginning of this chapter, many popular diets acknowledge this already by incorporating "cheat days" into their regime, although the empirical support for its effectiveness is scarce (for initial evidence, see Coelho do Vale, Pieters, & Zeelenberg, 2016). Replenishment, however, is an appealing explanation for why it may be good to sometimes allow oneself to relax self-regulatory efforts. Also, the studies on (dys)functional self-licensing (Chapter 5) provide indirect support for the proposition that the occasional planned indulgence actually supports effective self-regulation in the long run, as this was suggested to be one of the defining characteristics of functional self-licensing. Nonetheless, the question remains whether replenishment of self-regulatory capacity is indeed the mechanism underlying these beneficial effects of planned indulgence. Hence, additional studies can be carried out to test this replenishment-hypothesis in order to further elucidate the adaptiveness of implementing indulgence into one's goal striving strategies.

Lastly, the generalizability of the current findings is limited in the sense that all studies focused on eating behavior. Therefore, it remains unclear whether the findings can be extrapolated to other (health) behaviors that need to be regulated, like sleeping, exercising, or spending behavior. Although eating behavior is a typical example of regulated behavior and has important practical implications, self-licensing theory should apply to a wide range of behavior. Theoretically, similar outcomes as those that were obtained in the present dissertation can be expected for other behaviors that involve dealing with self-regulation dilemmas and hence are susceptible to justification processes. However, it is important to be aware of critical differences between these types of behavior that might influence how self-licensing affects self-regulation over time. For example, justifying going to bed later than intended ("bedtime procrastination"; Kroese, Evers, Adriaanse, & De Ridder, 2016) also has physical consequences (i.e., feeling tired) that may direct subsequent bedtime decisions alongside longer-term self-licensing effects. Thus, further research in different behavioral domains should be undertaken to verify the external validity of the present work. It is also advised to investigate self-licensing in more divers samples in terms of gender. In the present studies mostly female participants were employed as women generally have been found to be more concerned about their body weight (Grabe, Ward, & Hyde, 2008) and to diet more than men (Kiefer, Rathmanner, & Kunze, 2005). Hence, they are more likely to meet the premise of having eating goals that necessitate the employment of justifications in order to indulge. Nonetheless, similar effects are expected for male individuals, as long as they hold a diet or specific eating goal. However, future studies that include both men and women should corroborate these assumptions.

Conclusion

A dieter who chooses pizza over a healthy salad thinking 'I worked so hard, I deserve it' seems to have fallen of the wagon. However, the present dissertation shed light on the aftermath of such licensed indulgence and demonstrated that self-licensing has the potential to safeguard perceptions of self-regulatory ability and promotes new attempts at successful self-regulation. However, this seems to depend on whether self-licensing is solely hedonically motivated or strategically applied in order to foster long-term goal adherence. These insights might inspire new approaches and guide the development of behavior change techniques to deal with unsuccessful self-regulation. Important next steps include verification of the proposed mechanisms underlying immediate and more long-term self-licensing effects, and application of self-licensing theory to other (health) behaviors that require self-regulation.

References

Adriaanse, M. A., & Prinsen, S. (2018). Justification as antecedent and consequence of self-control failure. In D. T. D. De Ridder, M. A. Adriaanse, & K. Fujita (Eds.), *The routledge international handbook of self-control in health and well-being* (pp. 206-218). New York: Routledge.

Adriaanse, M. A., de Ridder, D. T. D., & de Wit, J. B. (2009). Finding the critical cue: Implementation intentions to change one's diet work best when tailored to personally relevant reasons for unhealthy eating. *Personality and Social Psychology Bulletin, 35*, 60-71.

Adriaanse, M. A., Weijers, J., De Ridder, D. T. D., De Witt Huberts, J. C., & Evers, C. (2014). Confabulating reasons for behaving bad: The psychological consequences of unconsciously activated behaviour that violates one's standards. *European Journal of Social Psychology, 44*, 255-266.

Bandura, A. (2012). On the functional properties of self-efficacy revisited. *Journal of Management, 38,* 9-44.

Bar-Anan, Y., Wilson, T. D., & Hassin, R. R. (2010). Inaccurate self-knowledge formation as a result of automatic behaviour. *Journal of Experimental Social Psychology, 46*, 884-894.

Baumeister, R. F. (2002). Yielding to temptation: Self-control failure, impulsive purchasing, and consumer behavior. *Journal of Consumer Research, 28,* 670-676.

Baumeister, R. F. (2003). Ego depletion and self-regulation failure: A resource model of self-control. *Alcoholism: Clinical and Experimental Research, 27*, 281-284.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, *74*, 1252-1265.

Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. *Psychological Inquiry, 7,* 1-15.

Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass*, *1*, 115-128.

Beard, C., Sawyer, A. T., & Hofmann, S. G. (2012). Efficacy of attention bias modification using threat and appetitive stimuli: A meta-analytic review. *Behavior Therapy, 43*, 724-740.

Blanken, I. (2015). *Self-licensing: When and why people give in to temptation* (Doctoral dissertation). Retrieved from https://pure.uvt.nl/ws/portalfiles/portal/8914771/Blanken_ Self_licensing_27_11_2015.pdf

Blanken, I., Van de Ven, N., & Zeelenberg, M. (2015). A meta-analytic review of moral licensing. *Personality and Social Psychology Bulletin, 41*, 540-558.

Blanken, I., Van de Ven, N., Zeelenberg, M., & Meijers, M. H. C. (2014). Three attempts to replicate the moral licensing effect. *Social Psychology, 45*, 232-238.

Brunstrom, J. M., Yates, H. M., & Witcomb, G. L. (2004). Diet restraint and heightened reactivity to food. *Physiology & Behavior*, *81*, 85-90.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6,* 3-5.

Carels, R. A., Douglass, O., Cacciapaglia, H., & O'Brien, W. H. (2004). An ecological momentary assessment of relapse crisis in dieting. *Journal of Consulting and Clinical Psychology, 72,* 341-348.

Carels, R. A., Hoffman, J., Collins, A., Raber, A. C., Cacciapaglia, H., & O'Brien, W. H. (2001). Ecological momentary assessment of temptation and lapse in dieting. *Eating Behaviors, 2,* 307-321.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1,* 245-276.

Chang, Y. Y. C., & Chiou, W. B. (2014). Taking weight-loss supplements may elicit liberation from dietary control. A laboratory experiment. *Appetite*, *72*, 8-12.

Church, T., & Martin, C. K. (2018). The obesity epidemic: A consequence of reduced energy expenditure and the uncoupling of energy intake*? Obesity, 26*, 14-16.

Ciarocco N. J., Twenge J. M., Muraven M., Tice D. M. (2010). *Measuring state self-control: Reliability, validity, and correlations with physical and psychological stress.* Unpublished manuscript. Monmouth University, New Jersey.

Clarkson, J. J., Hirt, E. R., Jia, L., & Alexander, M. B. (2010). When perception is more than reality: The effects of perceived versus actual resource depletion on self-regulatory behavior. *Journal of Personality and Social Psychology, 98*, 29-46.

Coelho Do Vale, R. C., Pieters, R., & Zeelenberg, M. (2016). The benefits of behaving badly on occasion: Successful regulation by planned hedonic deviations. *Journal of Consumer Psychology, 26*, 17-28.

Conner, M., Norman, P., & Bell, R. (2002). The theory of planned behavior and healthy eating. *Health Psychology, 21*, 194-201.

Connolly, T., & Zeelenberg, M. (2002). Regret in decision making. *Current Directions in Psychological Science, 11,* 212-216.

Crescioni, A. W., Ehrlinger, J., Alquist, J. L., Conlon, K. E., Baumeister, R. F., Schatschneider, C., & Dutton, G. R. (2011). High trait self-control predicts positive health behaviors and success in weight loss. *Journal of Health Psychology*, *16*, 750-759.

Cutter, T. (2012). *The 80/20 diet*. Sydney: Healthy Chef.

De Ridder, D. T. D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review, 16*, 76-99.

De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2012). License to sin: Self-licensing as underlying mechanism of hedonic consumption. *European Journal of Social Psychology, 42,* 490-496.

De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2013). Double trouble: Restrained eaters do not eat less and feel worse. *Psychology & Health, 28,* 686-700.

De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2014a). "Because I am worth it": A theoretical framework and empirical review of a justification-based account of self-regulation failure. *Personality and Social Psychology Review*, *18*, 119-138.

De Witt Huberts, J. C., Evers, C. & De Ridder, D. T. D. (2014b). Think before sinning: Reasoning processes in hedonic consumption. *Frontiers in Psychology, 5,* 1268.

De Witt Huberts, J. C., Evers, C. & De Ridder, D. T. D. (2018). *Emotional license: Negative emotions as justification for self-regulation failure*. Manuscript submitted for publication.

Dhar, R., & Simonson, I. (1999). Making complementary choices in consumption episodes: Highlighting versus balancing. *Journal of Marketing Research, 36,* 29-44.

Dolan, P., & Galizzi, M. M. (2015). Like ripples on a pond: Behavioral spillovers and their implications for research and policy. *Journal of Economic Psychology, 47,* 1-16.

Duckworth, A. L., & Seligman, M. E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science, 16*, 939-944.

Effron, D. A., Monin, B., & Miller, D. T. (2013). The unhealthy road not taken: Licensing indulgence by exaggerating counterfactual sins. *Journal of Experimental Social Psychology, 49,* 573-578.

Elfhag, K., & Rössner, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obesity Reviews, 6,* 67-85.

Ello-Martin, J. A., Ledikwe, J. H., & Rolls, B. J. (2005). The influence of food portion size and energy density on energy intake: Implications for weight management. *The American Journal of Clinical Nutrition*, *82*, 236-241.

Evans, J. S. B. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology, 59*, 255-278.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.

Fedoroff, I., Polivy, J., & Herman, C. P. (2003). The specificity of restrained versus unrestrained eaters' responses to food cues: General desire to eat, or craving for the cued food? *Appetite*, *41*, 7-13.

Ferrario, C. R. (2017). Food addiction and obesity. *Neuropsychopharmacology*, *42*, 361-361.

Fishbach, A., & Dhar, R. (2005). Goals as excuses or guides: The liberating effect of perceived goal progress on choice. *Journal of Consumer Research*, *32*, 370-377.

Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not into temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and*

Social Psychology, 84, 296-309.

Fujita, K. (2011). On conceptualizing self-control as more than the effortful inhibition of impulses. *Personality and Social Psychology Review, 15,* 352-366.

Gillebaart, M., & de Ridder, D. T. D. (2015). Effortless self-control: A novel perspective on response conflict strategies in trait self-control. *Social and Personality Psychology Compass, 9,* 88-99.

Gilovich, T., & Medvec, V. H. (1994). The temporal pattern to the experience of regret. *Journal of Personality and Social Psychology, 67,* 357-365.

Giner-Sorolla, R. (2001). Guilty pleasures and grim necessities: Affective attitudes in dilemmas of self-control. *Journal of Personality and Social Psychology, 80*, 206-221.

Glynn, S. M., & Ruderman, A. J. (1986). The development and validation of an eating self-efficacy scale. *Cognitive Therapy and Research, 10,* 403-420.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist, 54*, 493-503.

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in Experimental Social Psychology, 38*, 69-119.

Gortmaker, S. L., Swinburn, B. A., Levy, D., Carter, R., Mabry, P. L., Finegood, D. T., Huang, T., Marsh, T., & Moodie, M. L. (2011). Changing the future of obesity: Science, policy, and action. *The Lancet*, *378*, 838-847.

Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin, 134,* 460-476.

Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person x situation perspective. *Journal of Personality and Social Psychology, 93,* 583-599.

Grilo, C. M., Shiffman, S., & Carter-Campbell, J. T. (1994). Binge eating antecedents in normal-weight nonpurging females: Is there consistency? *International Journal of Eating Disorders, 16,* 239-249.

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin*, *136*, 495-525.

Haws, K. L., & Poynor, C. (2008). Seize the day! Encouraging indulgence for the hyperopic consumer. *Journal of Consumer Research, 35*, 680-691.

Herman, C. P., & Polivy, J. (1980). Restrained eating. In A. J. Stunkard (Ed.), *Obesity* (pp. 208-225). Philadelphia: Saunders.

Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating. *Journal of Personality, 43*, 646-660.

Hill, J. O., & Peters, J. C. (1998). Environmental contributions to obesity epidemic. *Science, 280,* 1371-1374.

Hill, J. O., Wyatt, H. R., Reed, G. W., & Peters, J. C. (2003). Obesity and the environment: Where do we go from here? *Science, 299*, 853-855.

Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). Everyday temptations: An experience sampling study of desire, conflict, and self-control. *Journal of Personality and Social Psychology, 102*, 1318-1335.

Hofmann, W., Friese, M., & Wiers, R. W. (2008). Impulsive versus reflective influences on health behavior: A theoretical framework and empirical review. *Health Psychology Review*, *2*, 111-137.

Hofmann, W., Kotabe, H., & Luhmann, M. (2013). The spoiled pleasure of giving in to temptation. *Motivation and Emotion, 37*, 733-742

Hofmann, W., Luhmann, M., Fisher, R. R., Vohs, K. D., & Baumeister, R. F. (2014). Yes, but are they happy? Effects of trait self-control on affective well-being and life satisfaction. *Journal of Personality, 92,* 265-277.

Hofmann, W., Rauch, W., & Gawronski, B. (2007). And deplete us not into temptation: Automatic attitudes, diet restraint, and self-regulatory resources as determinants of eating behavior. *Journal of Experimental Social Psychology*, *43*, 497-504.

Hofmann W., & Van Dillen L. F. (2012). Desire: The new hotspot in self-control research. *Current Directions in Psychological Science, 21*, 317-322.

Holland, R. W., Aarts, H., & Langendam, D. (2006). Breaking and creating habits on the working floor: A field-experiment on the power of implementation intentions. *Journal of Experimental Social Psychology*, 42, 776-783.

Hox, J. J., Moerbeek, M., & Van de Schoot, R. (2010). *Multilevel analysis: Techniques and applications*. New York: Routledge.

Inzlicht, M., & Schmeichel, B. J. (2012). What is ego depletion? Toward a mechanistic revision of the resource model of self-control. *Perspectives on Psychological Science, 7,* 450-463.

Inzlicht, M., Schmeichel, B. J., & Macrae, C. N. (2014). Why self-control seems (but may not be) limited. *Trends in Cognitive Sciences, 18*, 127-133.

Job, V., Dweck, C. S., & Walton, G. M. (2010). Ego depletion—Is it all in your head? Implicit theories about willpower affect self-regulation. *Psychological Science, 21*, 1686-1693.

Johnson, F., Pratt, M., & Wardle, J. (2012). Diet restraint and self-regulation in eating behavior. *International Journal of Obesity*, *36*, 665-674.

Jordan, J., Mullen, E., & Murnighan, J. K. (2011). Striving for the moral self: The effects of recalling past moral actions on future moral behavior. *Personality and Social Psychology Bulletin, 37*, 701-713.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39,* 31-36.

Khan, U., & Dhar, R. (2006). Licensing effect in consumer choice. *Journal of Marketing Research, 43,* 259-266.

Khan, U., & Dhar, R. (2007). Where there is a way, is there a will? The effect of future choices on self-control. *Journal of Experimental Psychology: General*, *136*, 277-288.

Kiefer, I., Rathmanner, T., & Kunze, M. (2005). Eating and dieting differences in men and women. *Journal of Men's Health and Gender*, *2*, 194-201.

Kitsantas, A. (2000). The role of self-regulation strategies and self-efficacy perceptions in successful weight loss maintenance. *Psychology & Health, 15,* 811-820.

Kivetz, R., Meng, R., & He., D. (2018). Hyperopia: A theory of reverse self-control. In D. T. D. De Ridder, M. A. Adriaanse, & K. Fujita (Eds.), *The routledge international handbook of self-control in health and well-Being* (pp. 219-237). New York: Routledge.

Kivetz, R., & Simonson, I. (2002). Earning the right to indulge: Effort as a determinant of customer preferences toward frequency program rewards. *Journal of Marketing Research, 39,* 155-170.

Kivetz, R., & Zheng, Y. (2006). Determinants of justification and self-control. *Journal of Experimental Psychology: General, 135,* 572-587.

Knäuper, B., Rabiau, M., Cohen, O., & Patriciu, N. (2004). Compensatory health beliefs: Scale development and psychometric properties. *Psychology & Health, 19*, 607-624.

Koo, M., & Fishbach, A. (2008). Dynamics of self-regulation: How (un)accomplished goal actions affect motivation. *Journal of Personality and Social Psychology*, *94*, 183-195.

Kotabe, H. P., & Hofmann, W. (2015). On integrating the components of self-control. *Perspectives on Psychological Science, 10*, 618-638.

Kouchaki, M. (2011). Vicarious moral licensing: The influence of others' past moral actions on moral behavior. *Journal of Personality and Social Psychology, 101,* 702-715.

Kroese, F. M., Evers, C., Adriaanse, M. A., & De Ridder, D. T. D. (2016). Bedtime procrastination: A self-regulation perspective on sleep insufficiency in the general population. *Journal of Health Psychology, 21*, 853-862.

Kroese, F. M., Evers, C., & De Ridder, D. T. D. (2013). Tricky treats: Paradoxical effects of temptation strength on self-regulation processes. *European Journal of Social Psychology, 41*, 281-288.

Kronick, I., Auerbach, R. P., Stich, C., & Knäuper, B. (2011). Compensatory beliefs and intentions contribute to the prediction of caloric intake in dieters. *Appetite*, *57*, 435-438.

Kronick, I., & Knäuper, B. (2010). Temptations elicit compensatory intentions. *Appetite, 54*, 398-401.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108*, 480-498.

Lakerveld, J., Mackenbach, J. D., Rutter, H., & Brug, J. (2018). Obesogenic environment

and obesogenic behaviours. In C. Hankey & K. Whelan (Eds.), *Advanced nutrition and dietetics in obesity* (pp. 132-137). New Jersey: John Wiley & Sons.

Levav, J., & McGraw, A. P. (2009). Emotional accounting: How feelings about money influence consumer choice. *Journal of Marketing Research, 46,* 66-80.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs: Prentice Hall.

Macri, I. (2015). *Happy go paleo: Fun, healthy meals from my 80/20 kitchen*. Hawthorn: Penguin Books.

Malik, V. S., Willett, W. C., & Hu, F. B. (2013). Global obesity: Trends, risk factors and policy implications. *Nature Reviews Endocrinology*, *9*, 13-27.

Mann, T., Tomiyama, A. J., Westling, E., Lew, A. M., Samuels, B., & Chatman, J. (2007). Medicare's search for effective obesity treatments: Diets are not the answer. *American Psychologist, 62*, 220-233.

Marlatt, G. A., & Gordon, J. R. (1980). Determinants of relapse: Implications for the maintenance of behavior change. In P. O. Davidson & S. M. Davidson (Eds.), *Behavioral medicine: Changing health lifestyles* (pp. 410-452). New York: Brunner/Mazel.

Marlatt, G. A., & Gordon, J. R. (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors.* New York: Guilford Press.

Mazar, N., & Zhong, C. B. (2010). Do green products make us better people? *Psychological Science, 21*, 494-498.

McKee, H. C., Ntoumanis, N., & Taylor, I. M. (2014). An ecological momentary assessment of lapse occurrences in dieters. *Annals of Behavioral Medicine, 48,* 300-310.

Merritt, A. C., Effron, D. A., & Monin, B. (2010). Moral self-licensing: When being good frees us to be bad. *Social and Personality Psychology Compass, 4,* 344-357.

Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, *106*, 3-19.

Miller, D. T., & Effron, D. A. (2010). Psychological license: When it is needed and how it functions. In M. Zanna & J. Olson (Eds.), *Advances in experimental social psychology* (pp. 117-157). Stanford: Elsevier.

Miquelon, P., Knäuper, B., & Vallerand, R. J. (2012). Motivation and goal attainment: The role of compensatory beliefs. *Appetite, 58,* 608-615.

Monin, B., & Miller, D. T. (2001). Moral credentials and the expression of prejudice. *Journal of Personality and Social Psychology, 81,* 33-43.

Mukhopadhyay, A., & Johar, G. V. (2009). Indulgence as self-reward for prior shopping restraint: A justification-based mechanism. *Journal of Consumer Psychology*, *19*, 334-345.

Mukhopadhyay, A., Sengupta, J., & Ramanathan, S. (2008). Recalling past temptations:

An information-processing perspective on the dynamics of self-control. *Journal of Consumer Research*, *35*, 445-453.

Muraven, M., Collins, R. L., Morsheimer, E. T., Shiffman, S., & Paty, J. A. (2005). The morning after: Limit violations and the self-regulation of alcohol consumption. *Psychology of Addictive Behaviors, 19,* 253-262.

Myrseth, K. O. R., & Fishbach, A. (2009). Self-control: A function of knowing when and how to exercise restraint. *Current Directions in Psychological Science, 18*, 247-252.

Nederkoorn, C., Smulders, F. T., Havermans, R. C., Roefs, A., & Jansen, A. (2006). Impulsivity in obese women. *Appetite*, *47*, 253-256.

Netherlands Nutrition Centre (2016). *Caloriechecker.* Retrieved from http://caloriechecker.nl

Nezlek, J. B. (2012). Multilevel modeling of diary-style data. In M. R. Mehl & T. S. Conner (Eds.). *Handbook of research methods for studying daily life* (pp. 357-383). New York: Guilford Press.

Nguyen, C., & Polivy, J. (2014). Eating behavior, restraint status, and BMI of individuals high and low in perceived self-regulatory success. *Appetite, 75*, 49-53.

Novemsky, N., & Dhar, R. (2005). Goal fulfillment and goal targets in sequential choice. *Journal of Consumer Research, 32,* 396-404.

Okada, E. M. (2005). Justification effects on consumer choice of hedonic and utilitarian goods. *Journal of Marketing Research, 42*, 43-53.

Papies, E., Stroebe, W., & Aarts, H. (2007). Pleasure in the mind: Restrained eating and spontaneous hedonic thoughts about food. *Journal of Experimental Social Psychology, 43,* 810-817.

Pizarro, D., Uhlmann, E., & Salovey, P. (2003). Asymmetry in judgments of moral blame and praise: The role of perceived metadesires. *Psychological science, 14*, 267-272.

Polivy, J., & Herman, C. P. (1985). Dieting as a problem in behavioral medicine. In E. Katkin & S. Manuck (Eds.), *Advances in behavioral medicine* (pp. 1-37). New York: SAI.

Polivy, J., Herman, C. P., & Warsh, S. (1978). Internal and external components of emotionality in restrained and unrestrained eaters. *Journal of Abnormal Psychology, 87*, 497-504.

Prinsen, S., Evers, C., & De Ridder, D. T. D. (2016). Oops I did it again: Examining self-licensing effects in a subsequent self-regulation dilemma. *Applied Psychology: Health and Well-Being, 8*, 104-126.

Rabiau, M., Knäuper, B., & Miquelon, P. (2006). The eternal quest for optimal balance between maximizing pleasure and minimizing harm: The compensatory health beliefs model. *British Journal of Health Psychology, 11*, 139-153.

Radtke, T., Kaklamanou, D., Scholz, U., Hornung, R., & Armitage, C. (2014). Are diet-specific compensatory health beliefs predictive of dieting intentions and behaviour? *Appetite, 76*, 36-43.

Ramanathan, S., & Williams, P. (2007). Immediate and delayed emotional consequences of indulgence: The moderating influence of personality type on mixed emotions. *Journal of Consumer Research, 34,* 212-223.

Robinson, E., Haynes, A., Hardman, C. A., Kemps, E., Higgs, S., & Jones, A. (2017). The bogus taste test: Validity as a measure of laboratory food intake. *Appetite, 116*, 223-231.

Sachdeva, S., Iliev, R., & Medin, D. L. (2009). Sinning saints and saintly sinners: The paradox of moral self-regulation. *Psychological science, 20*, 523-528.

Salerno, A., Laran, J., & Janiszewski, C. (2015). Pride and regulatory behavior: The influence of appraisal information and self-regulatory goals. *Journal of Consumer Research*, *42*, 499-514.

Schmeichel, B. J. (2007). Attention control, memory updating, and emotion regulation temporarily reduce the capacity for executive control. *Journal of Experimental Psychology: General*, *136*, 241-255.

Sheeran, P. (2002). Intention–behavior relations: A conceptual and empirical review. *European Review of Social Psychology, 12,* 1-36.

Shu, S. B., & Gneezy, A. (2010). Procrastination of enjoyable experiences. *Journal of Marketing Research, 47*, 933-944.

Smith, C. F., O'Neil, P. M., & Rhodes, S. K. (1999). Cognitive appraisals of dietary transgressions by obese women: Associations with self-reported eating behavior, depression, and actual weight loss. *International Journal of Obesity and Related Metabolic Disorders, 23,* 231-237.

Smith, C. F., Williamson, D. A., Bray, G. A., & Ryan, D. H. (1999). Flexible vs. rigid dieting strategies: Relationship with adverse behavioral outcomes. *Appetite*, *32*, 295-305.

Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review, 4*, 108-131.

Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). Los Angeles: SAGE.

Steenhuis, I. (2009). Guilty or not? Feelings of guilt about food among college women. *Appetite, 52*, 531-534.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 8,* 220-247.

Stroebe, W., Mensink, W., Aarts, H., Schut, H., & Kruglanski, A. W. (2008). Why dieters fail: Testing the goal conflict model of eating. *Journal of Experimental Social Psychology*, *44*, 26-36.

Stroebe, W., Van Koningsbruggen, G. M., Papies, E. K., & Aarts, H. (2013). Why most dieters fail but some succeed: A goal conflict model of eating behavior. *Psychological Review,*

120, 110-138.

Stunkard, A. J., & Messick, S. (1985). The three-factor eating questionnaire to measure diet restraint, disinhibition and hunger. *Journal of Psychosomatic Research*, *29*, 71-83.

Swinburn, B., Egger, G., & Raza, F. (1999). Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Preventive Medicine, 29*, 563-570.

Tabachnick, B. G., & Fidell, L. S. (2007) *Using Multivariate Statistics* (5th ed.). Boston: Allyn & Bacon.

Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality, 72*, 271-324.

Taylor, A. L., Parento, E. W., & Schmidt, L. A. (2014). The increasing weight of regulation: Countries combat the global obesity epidemic. *Indiana Law Journal, 90,* 1-34.

Taylor, C. (2013). *How people use justifications to willingly give in to temptation* (Unpublished doctoral dissertation). The University of Sheffield, United Kingdom.

Taylor, C., Webb, T. L., & Sheeran, P. (2013). 'I deserve a treat!': Justifications for indulgence undermine the translation of intentions into action. *British Journal of Social Psychology*, *53*, 501-520.

Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology, 80,* 53-67.

Tiefenbeck, V., Staake, T., Roth, K., & Sachs, O. (2013). For better or for worse? Empirical evidence of moral licensing in a behavioral energy conservation campaign. *Energy Policy, 57,* 160-171.

Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology, 79*, 493-506.

Tsiros, M., & Mittal, V. (2000). Regret: A model of its antecedents and consequences in consumer decision making. *Journal of Consumer Research, 26,* 401-417.

Tsukayama, E., Toomey, S. L., Faith, M. S., & Duckworth, A. L. (2010). Self-control as a protective factor against overweight status in the transition from childhood to adolescence. *Archives of Pediatrics & Adolescent Medicine, 164*, 631-635.

Urbszat, D., Herman, C. P., & Polivy, J. (2002). Eat, drink, and be merry, for tomorrow we diet: Effects of anticipated deprivation on food intake in restrained and unrestrained eaters. *Journal of Abnormal Psychology*, *111*, 396-401.

Verhoeven, A. A. C., Adriaanse, M. A., De Vet, E., Fennis, B. M., & De Ridder, D. T. D. (2015). It's my party and I eat if I want to: Reasons for unhealthy snacking. *Appetite, 84*, 20-27.

Verhoeven, A. A. C., Adriaanse, M. A., Evers, C., & De Ridder, D. T. D. (2012). The power of

habits: Unhealthy snacking behaviour is primarily predicted by habit strength. *British Journal of Health Psychology, 17*, 758-770.

Vohs, K. D., & Baumeister, R. F. (2011). *Handbook of self-regulation: Research, theory, and applications*. New York: Guilford Press.

Wammes, B., Breedveld, B., Kremers, S., & Brug, J. (2006). The 'balance intervention' for promoting caloric compensatory behaviours in response to overeating: A formative evaluation. *Health Education Research, 21*, 527-537.

Weibel, C., Messner, C., & Brügger, A. (2014). Completed egoism and intended altruism boost healthy food choices. *Appetite*, *77*, 38-45.

Wertenbroch, K. (1998). Consumption self-control by rationing purchase quantities of virtue and vice. *Marketing science, 17*, 317-337.

Westenhoefer, J., Stunkard, A. J., & Pudel, V. (1999). Validation of the flexible and rigid control dimensions of diet restraint. *International Journal of Eating Disorders*, *26*, 53-64

Wilcox, K., Kramer, T., & Sen, S. (2011). Indulgence or self-control: A dual process model of the effect of incidental pride on indulgent choice. *Journal of Consumer Research, 38*, 151-163.

World Health Organization (2018, October 10th). *Obesity and overweight*. Retrieved from http://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight

Xu, J., & Schwarz, N. (2009). Do we really need a reason to indulge? *Journal of Marketing Research, 46,* 25-36.

Zemack-Rugar, Y., Corus, C., & Brinberg, D. (2012). The "Response-to-failure" scale: Predicting behavior following initial self-control failure. *Journal of Marketing Research, 49,* 996-1014.

Nederlandse samenvatting
(Dutch summary)

Stel je een lijner voor die kan kiezen tussen een stuk pizza of een gezonde salade als lunch. Dit roept een conflict op: Aan de ene kant is er de verstandige keuze voor de salade, aan de andere kant lonkt de meer aantrekkelijke pizza die verleidelijk maar slecht voor de lijn is. In de literatuur worden dit soort conflicten zelfregulatiedilemma's genoemd, met als belangrijkste kenmerk dat een kortetermijn doel (bijvoorbeeld genieten van lekker maar calorierijk eten) in strijd is met een langetermijn doel (bijvoorbeeld afvallen). Een manier om met een dergelijk zelfregulatiedilemma om te gaan, is het gebruiken van 'zelfrechtvaardiging'. Dit houdt in dat mensen excuses verzinnen of aangrijpen om (tijdelijk) afstand te doen van een langetermijn doel, zoals 'ik kan nu pizza eten als ik vanavond naar de sportschool ga', 'ik heb zo hard gewerkt, ik verdien het', of 'Ik voel me rot, ik heb iets lekkers nodig om me op te vrolijken'. Zelfrechtvaardiging kan als verklaring dienen waarom mensen toegeven aan verleidingen terwijl deze het behalen van hun langetermijn doel in gevaar brengen.

Zelfrechtvaardigingstheorie biedt een nieuw perspectief op zelfregulatiefalen door te stellen dat mensen beredeneerd en weloverwogen kunnen toegeven aan verleidingen. Dit nieuwe perspectief staat haaks op het dominante paradigma dat zelfregulatiefalen veroorzaakt wordt door oncontroleerbare impulsen. Dit houdt bijvoorbeeld in dat het zien en ruiken van een vers gebakken pizza de impuls geeft om te 'zondigen', waar vervolgens alleen een goed werkend beredeneringsvermogen weerstand aan kan bieden. Het vermogen om goed na te denken over een keuze leidt echter niet altijd tot het maken van juiste en rationele keuzes; denk maar aan de vakantieganger die weloverwogen toegeeft aan allerlei verleidingen omdat het nu eenmaal vakantie is. Experimenteel bewijs voor zelfrechtvaardiging heeft inderdaad laten zien dat beredeneringsvermogen ook kan worden ingezet om zich irrationeel (doelafwijkend) te gedragen. Met dit initiële onderzoek is een belangrijke alternatieve verklaring voor zelfregulatiefalen geïntroduceerd.

In dit proefschrift is zelfrechtvaardiging op het gebied van eetgedrag verder onderzocht. Er werd gekozen voor dit gedrag, omdat voor gezond eten of afvallen continu zelfregulatie nodig is (bepalen wat, wanneer en hoeveel te eten). Ook heeft praktisch iedereen er in min of meerdere zin mee te maken, in tegenstelling tot verleidingen als sigaretten en alcohol. Bovendien is in die gevallen complete abstinentie mogelijk, wat bij eten logischerwijs onmogelijk is. Ook is er in de moderne samenleving een groot aanbod van direct beschikbare en goedkope voedselverleidingen, waardoor een gezond of caloriearm eetpatroon voor veel mensen een grote uitdaging is. Het is dan ook geen verrassing dat de prevalentie van overgewicht en obesitas stijgende is en epidemische proporties heeft aangenomen. Samengenomen maakt dit eetgedrag een relevant onderzoeksdomein voor het bestuderen van zelfrechtvaardiging.

In eerste instantie lijkt het een vanzelfsprekende conclusie dat zelfrechtvaardiging het bereiken van langetermijn doelen belemmert. Onderzoek laat immers zien dat het gebruiken van een rechtvaardiging tot zelfregulatiefalen leidt. Het geleverde bewijs tot dusver is echter beperkt gebleven tot het vaststellen van een eenmalig moment van falen, waardoor het onduidelijk is wat er daarna gebeurt met het nastreven van het langetermijn doel om gezond en/of minder te eten. Dat wil zeggen, het is onduidelijk of het langetermijn doel weer wordt opgepakt na die eenmalige 'welverdiende' pizza of dat er vervolgens aan nog meer verleidingen wordt toegegeven omdat het langetermijn doel toch al geschonden is. Dit is een belangrijke vraag aangezien het bereiken van langetermijn doelen vaak een optelsom van meerdere gedragskeuzes is. Dit geldt ook voor eetgedrag: Eenmalig een pizza eten brengt een afvaldoel niet direct in gevaar, maar dit is wel het geval wanneer dit herhaaldelijk gebeurt. Het is daarom essentieel voor de zelfrechtvaardigingstheorie om verder te kijken dan een eerste moment van zelfregulatiefalen, om zo meer inzicht te krijgen in de effecten van zelfrechtvaardiging op zelfregulatie over tijd.

Hoewel zelfrechtvaardiging dus vaak wordt beschouwd als een bedreiging voor succesvolle zelfregulatie, is het theoretisch gezien niet onwaarschijnlijk dat het toegeven aan een verleiding door zelfrechtvaardiging de daaropvolgende poging tot succesvolle zelfregulatie juist bevordert. Een kenmerkende eigenschap van zelfrechtvaardiging is namelijk dat het een oplossing biedt voor een zelfregulatieconflict. Dit wil zeggen dat iemand die een rechtvaardiging gebruikt, zichzelf een verleiding veroorlooft zonder dat er schuldgevoelens de kop opsteken. Dit is belangrijk, aangezien onderzoek heeft laten zien dat negatieve reacties op falen in verband worden gebracht met het verder escaleren van het ongewenste gedrag. Een lijner kan bijvoorbeeld denken 'door deze pizza heb ik mijn dieet toch al verpest, nu maakt het niet meer uit wat ik verder eet'. Met zelfrechtvaardiging kan dus voorkomen worden dat een op zichzelf onschuldige verwennerij de aanzet geeft tot het compleet afstand doen van een langetermijn doel. Bezien vanuit dit perspectief is het belangrijk om te onderzoeken of zelfrechtvaardiging kan worden toegepast als zelfregulatiestrategie. Wellicht is het zelfs verstandiger om af en toe gerechtvaardigd te zondigen dan te streven naar complete controle waarbij alle verleidingen weerstaan dienen te worden. Aan de andere kant is het ook mogelijk dat negatieve gevoelens omtrent falen juist de behoefte om te compenseren aanwakkeren. Dan zouden schuldgevoelens juist doelgericht gedrag motiveren, om op die manier de zondiging 'weer goed te maken'. Met andere woorden, of zelfrechtvaardiging op lange termijn nu wel of niet gunstig is voor het nastreven van langetermijn doelen, is onduidelijk, aangezien het zelfrechtvaardigingsonderzoek zich tot dusver uitsluitend heeft gericht op de onmiddellijke effecten van zelfrechtvaardiging. Om meer inzicht in te krijgen in de

effecten op de langere termijn, is het van belang om de focus te verschuiven van directe effecten (initieel zelfregulatiefalen), naar effecten die zich over tijd voordoen (het omgaan met daaropvolgende zelfregulatiedilemma's).

Doelstellingen

De centrale onderzoeksvraag van dit proefschrift was of zelfrechtvaardiging het potentieel heeft om langdurige zelfregulatie te bevorderen. Aan de hand van een drietal doelstellingen is er een serie experimentele, correlationele en prospectieve studies uitgevoerd om deze centrale vraag te beantwoorden. De eerste doelstelling was het bevestigen van de observatie dat zelfrechtvaardiging leidt tot initieel zelfregulatiefalen (**Hoofdstuk 2**). De tweede doelstelling was om deze observatie van gerechtvaardigd falen uit te breiden naar een daaropvolgend zelfregulatiedilemma, met een specifieke focus op zelfpercepties omtrent het initiële moment van falen (**Hoofdsuk 3** & **4**). De derde doelstelling was om te zien of er twee verschillende manieren van zelfrechtvaardiging zijn die zelfregulatie over tijd bevorderen dan wel belemmeren, door één week lang het eetgedrag van participanten te volgen (**Hoofdstuk 5**).

Omdat in alle studies gekeken werd naar eetgedrag, deden er alleen participanten mee voor wie de confrontatie met lekker maar ongezond en calorierijk eten een zelfregulatiedilemma oproept. Dit houdt in dat zij dergelijk eten zien als een verleiding, omdat het in strijd is met hun langetermijn doel om bijvoorbeeld af te vallen of gezond te eten.

Resultaten

In **Hoofdstuk 2** werd met drie experimentele studies bevestigd dat zelfrechtvaardiging in eerste instantie leidt tot zelfregulatiefalen. Participanten die op een subtiele manier een excuus tot hun beschikking kregen, door ze bijvoorbeeld het idee te geven dat ze in vergelijking tot anderen een moeilijke opdracht hadden gedaan, consumeerden vervolgens meer calorieën in vergelijking met participanten die dit excuus niet voorhanden hadden. Dit werd niet alleen aangetoond in het laboratorium door participanten bloot te stellen aan een verleidelijke lekkernij (Studie 1 & 2), maar ook in een naturalistische setting door participanten een voucher te geven die ze bij de plaatselijke HEMA konden inwisselen voor een snack naar keuze (Studie 3). Door het manipuleren van verschillende soorten excuses, zijn deze studies illustratief voor de grote diversiteit aan rechtvaardigingen die gebruikt kunnen worden om te breken met een langetermijn

doel. Daarnaast levert de veldstudie belangrijk bewijs voor zelfrechtvaardigingsprocessen door aan te tonen dat deze effecten ook buiten het lab, in een alledaagse omgeving te meten zijn.

In **Hoofdstuk 3** werd in twee studies met hypothetische scenario's onderzocht wat er gebeurt in de tijd nadat er door het gebruik van een excuus toegegeven is aan een verleiding. Beide studies lieten zien dat het hebben van een excuus voor het toegeven aan een eerste verleiding de kans op het toegeven aan een tweede verleiding vergroot. Tevens werd bevestigd dat het hebben van een excuus voor zelfregulatiefalen resulteert in minder negatieve (schuld)gevoelens omtrent dit falen. De tweede studie presenteerde het tweede zelfregulatiedilemma op twee manieren; in dezelfde situatie (bakkerij) of in een nieuwe situatie (eerste dilemma in bakkerij, tweede dilemma in supermarkt). De verhoogde kans op opnieuw toegeven aan een verleiding trad alleen op wanneer de tweede verleiding in dezelfde situatie gepresenteerd werd. De tweede studie bekeek ook percepties van zelfregulatievermogen, aan de hand van motivatie en eigen-effectiviteit (*self-efficacy*). Er werd alleen een trend geobserveerd voor self-efficacy; vermoedelijk zorgt zelfrechtvaardiging ervoor dat ondanks een moment van zelfregulatiefalen gevoelens van self-efficacy behouden blijven.

In **Hoofdstuk 4** werd nogmaals onderzocht wat er gebeurt in de tijd nadat er door het gebruik van een excuus toegegeven is aan een verleiding, ditmaal niet via hypothetische scenario's, maar door participanten een week lang te volgen in hun dagelijks leven via hun smartphones. Een week lang beantwoordden participanten elke twee uur vragen over voedselverleidingen, de mogelijkheid tot zelfrechtvaardiging en percepties van zelfregulatievermogen. De resultaten lieten zien dat zelfrechtvaardiging het weerstaan van nieuwe verleidingen (na een eerste moment van falen) mogelijk kan bevorderen en percepties van zelfregulatievermogen onder sommige omstandigheden kan beschermen. Daarnaast werd er bewijs geleverd voor een centrale assumptie van de zelfrechtvaardigingstheorie, namelijk dat zelfrechtvaardiging een oplossing biedt voor een zelfregulatieconflict. Tot dusver werd deze assumptie afgeleid uit het feit dat zelfrechtvaardiging leidt tot zondigen, terwijl direct bewijs ontbrak. Door de mate van conflict te meten levert deze studie dit directe bewijs wel.

In **Hoofdstuk 5** werd de differentiatie tussen functionele en disfunctionele zelfrechtvaardiging geïntroduceerd en gevalideerd, door middel van twee online studies (Studie 1 & 2) en een dagboekstudie waarbij participanten een week lang alle ongezonde snacks die ze aten registreerden (Studie 3). Het functionele type houdt in dat zelfrechtvaardiging van verleidingen wordt toegestaan met het achterliggende doel om langdurige zelfregulatie (gewichtscontrole) te ondersteunen. Het disfunctionele type is alleen gericht op directe bevrediging (genieten van lekker eten) en wordt gekenmerkt

door het te vaak en te snel toegeven aan verleidingen. Om deze twee types te meten werd een vragenlijst bestaande uit 20 items geconstrueerd (Studie 1), die vervolgens geverifieerd zijn aan de hand van de samenhang met indicatoren van succesvolle zelfregulatie (Studie 2) en daadwerkelijk eetgedrag (Studie 3). Zoals verwacht, hing dysfunctionele zelfrechtvaardiging negatief samen met succesvolle zelfregulatie en voorspelde het een grotere consumptie van ongezonde snacks, terwijl functionele zelfrechtvaardiging positief samenhing met succesvolle zelfregulatie en een lagere consumptie van ongezonde snacks voorspelde.

Conclusie

Al met al laten de studies in dit proefschrift zien dat zelfrechtvaardiging langdurige zelfregulatie kan ondersteunen. Alhoewel de studies beschreven in **Hoofdstuk 3** de indruk geven dat het gerechtvaardigd toegeven aan een verleiding leidt tot herhaaldelijk zondigen, wordt er een ander, meer genuanceerd beeld geschetst in **Hoofdstuk 4**. Daar bleek uit een meer ecologisch valide studie dat zelfrechtvaardiging juist wel bevorderlijk kan zijn voor succesvolle zelfregulatie over tijd, mogelijk door het beschermen van percepties van zelfregulatievermogen. Dit werd verder ondersteund door de observaties in de dagboekstudie gerapporteerd in **Hoofdstuk 5**, waaruit blijkt dat de effecten van zelfrechtvaardiging afhankelijk zijn van de mate waarin dit op een functionele of disfunctionele manier gebeurd.

Deze bevindingen vormen een belangrijke bijdrage aan de zelfrechtvaardigingstheorie door deze uit te breiden met voorspellingen over langetermijn effecten. Ook de differentiatie tussen functionele en dysfunctionele zelfrechtvaardiging vormt een waardevolle toevoeging aan het onderzoeksveld. Waar dysfunctionele zelfrechtvaardiging het heersende beeld bevestigt dat zelfrechtvaardiging gemotiveerd wordt door een verlangen om te zondigen en dus zelfregulatiefalen in de hand werkt, laat functionele zelfrechtvaardiging een strategische toepassing zien waar 'zondigen' uiteindelijk in dienst staat van een langetermijn doel en daarmee succesvolle zelfregulatie. Tenslotte zijn er aanwijzingen gevonden dat de positieve effecten van zelfrechtvaardiging te maken hebben met het behoud van vertrouwen in het eigen zelfregulatievermogen, wat een veelbelovend startpunt kan zijn voor vervolgonderzoek.

Op praktisch niveau bieden de huidige resultaten richting voor de ontwikkeling van interventies die gericht zijn op het bevorderen van gezond eetgedrag. In het algemeen kan het waardevol zijn om bij het ontwikkelen van dergelijke interventies rekening te houden met de rol van zelfrechtvaardigingsprocessen, omdat zowel eerder

als het huidige werk laat zien dat eetgedrag hierdoor beïnvloed wordt. Meer specifiek geeft dit proefschrift nieuwe aanwijzingen over hoe dit gedaan zou kunnen worden. Waar voorheen het advies gegeven zou kunnen worden om niet aan zelfrechtvaardiging te doen, laten de huidige inzichten zien dat het van belang is om eerst vast te stellen om wat voor type zelfrechtvaardiging het gaat (functioneel of disfunctioneel), om vervolgens de behandeling daarop af te stemmen.

Dankwoord (Acknowledgements)

Aan dit proefschrift hebben veel mensen direct en indirect bijgedragen. Deze mensen wil ik graag hartelijk danken. Als eerste natuurlijk Denise en Catharine, mijn begeleiders. **Denise**, aan mijn 'eeuwige aanstelling' is nu echt een einde gekomen. Ik ben dankbaar dat je al die jaren mijn promotor was, want jouw kennis en inzicht zijn van onschatbare waarde geweest. Op momenten dat ik het even niet meer wist, kon ik er altijd op vertrouwen dat jij me verder zou helpen. Ook waardeer ik het vertrouwen en de vrijheid die je mij gegeven hebt om mijn project vorm te geven. Het is bewonderenswaardig hoe jij leiding geeft aan de Stitch en ik voel me bevoorrecht dat ik er deel van uit heb mogen maken. Ik denk met veel plezier terug aan alle congressen, borrels en (promotie)feestjes, waar jij altijd tot het einde op de dansvloer te vinden was!

Catharine, ik ben zo blij dat ik jou als co-promotor en dagelijks begeleider aan mijn zijde heb gehad. Buiten je kennis en kunde op het gebied van onderzoek stond je ook altijd op persoonlijk vlak voor me klaar. Je hebt me op menig moment vooruit geholpen met je relativerende woorden of gewoon een dikke knuffel. Ook weet je het altijd gezellig te maken met je flauwe (of vieze) grappen en je bent altijd in voor een kletspraatje, al dan niet met een Gutenbergje erbij. Dankjewel voor alles wat ik van je geleerd heb, je gastvrijheid en alle gezelligheid. Ik hoop dat we nog af en toe een koffietje (of wijntje!) kunnen doen, want ik ga je wel missen hoor.

Marieke, met jou ben ik het project gestart en heb ik even kunnen proeven van jouw vakkundige manier van begeleiden. Ik ben dan ook blij dat we nog samengewerkt hebben met een artikel en hoofdstuk in het handboek als resultaat. Daarnaast heb ik veel profijt gehad van jouw expertise als tweelingmoeder, want wat was dat eerste jaar een achtbaan! Ook al had je het zelf druk, dan nog draaide je je hand niet om voor een persoonlijke peptalk. Je woont nu helaas niet meer om de hoek, maar we houden contact! Dankjewel voor alles (ik blijf het zeggen).

Tina en **Laurens**, ik ben trots dat jullie mijn paranimfen zijn. Tina, wat ben je toch een enigma. De manier waarop jij alles met een tomeloos enthousiasme aanpakt, of het nou een presentatie, review of doorkijkje in onze kamerdeur is, heb ik met veel plezier (en soms verbazing) mogen aanschouwen. Ondanks onze verschillende karakters klikte het direct tussen ons en ik heb veel goede herinneringen aan onze pogingen om op tijd op werk te zijn, je onuitputbare collectie woordgrappen en al je bijzondere hobby's zoals paaldansen (ahum 'pole fitness'). Laurens, wat was jij een fijne kamergenoot! Altijd in voor een goed gesprek, een slechte grap of een broodje in het Educatorium (over 10 minuten? Of nu?). Ik moet nog steeds lachen als ik terugdenk aan de kneus.jpg-affaire. Sorry nog voor de poster van een halfnaakte Douwe Bob in cowboy-outfit, dat was blijkbaar de grens.

Aukje, als kersverse aio werd ik al snel jouw kamergenoot en had ik zelfs de eer om jouw paranimf te zijn. Dankjewel dat je mij hebt ingewijd in het aio-bestaan, door jou voelde ik me meteen thuis in H123. Je enthousiasme voor onderzoek is aanstekelijk en het verbaast me niks dat je talent en ambities je helemaal naar Parijs hebben gebracht. Ze boffen daar met jou!

Jessie, de self-licensing *trailblazer*. Ik kan eerlijk zeggen dat ik jouw proefschrift van A tot Z heb gelezen (vaak met de gedachte hoe ik ooit zelf in staat zou zijn om te promoveren). Dank voor het banen van de weg voor mijn studies.

Verder wil ik alle collega's bedanken die van de Stitch zo'n fijne groep maken. Dank voor alle feedback op mijn manuscripten, de Gutenberg-breaks en alle gezelligheid! **Floor** en **Marleen**, bij jullie kon ik altijd terecht voor advies op het gebied van onderzoek of onderwijs, of voor een portie droge humor. Dank! **Jeroen**, jouw behulpzaamheid kent geen grenzen, dankjewel voor alle keren dat je mij geholpen hebt met programmeren. **Anouk,** jij zorgt er altijd voor dat het tussen de bedrijven door wel een beetje gezellig blijft. Koffie? **Caroline**, je bent me net voorgegaan met promoveren, aan jouw relaxedheid kan ik een voorbeeld nemen. **Femke** en **Jonas**, ook al voelde ik me door jullie komst ineens stokoud, leuk om nog een tijd een kamer met jullie gedeeld te hebben! Ook alle oud-Stitchies **Emely**, **Pieter**, **Josje**, **Marijn**, **Stefanie**, **Tracy**, **Astrid**, **David**, **Sanne**, **Marijn**, en **Lot**, dank voor de gezellige en leerzame tijd! Dit geldt ook voor alle (oud-)aio's van **KGP** en **SHOP**, de collega's van het **secretariaat**, de **PhD council** en **Prout**.

Simone and **Wilhelm**, thank you for the great time in Cologne. I have fond memories of all the lunches we shared together, and the time we drank Kölsch in a real traditional Brauhaus. You made me feel very welcome and it was a pleasure to work with you!

Leoniek, dankjewel voor de privécursus HLM. Ik bewonder je vermogen om ingewikkelde statistiek met zoveel geduld uit te leggen. Tegelijkertijd nam je ook altijd even de tijd om te zien hoe het met mij als persoon ging en had je soms meer vertrouwen in mij dan ikzelf. Dat maakte dat ik altijd weer met een goed gevoel bij je vandaan kwam, dank!

Alle **studenten** die over de jaren geholpen hebben met de dataverzameling, dank! In het bijzonder **Renée**, wat heb jij een werk verzet. Dankzij jou hing er in elke Albert Heijn in Amsterdam een oproep om aan onze studie mee te doen. Ook was het supergezellig om je een paar maanden als kamergenoot te hebben, al ging ik gaandeweg steeds meer koekjes eten en minion-filmpjes kijken. Het is leuk om eens in de zoveel tijd te horen hoe het met je gaat!

Dan nu de mensen die zorgden voor de nodige ontspanning en plezier wanneer ik niet met onderzoek bezig was. Ten eerste mijn lieve vriendinnen die ik het

afgelopen jaar schandalig weinig gezien heb: **Sanne**, **Frieda**, **Simone**, **Inge** en **Tat**. Ik vind het bijzonder dat we al zo lang zo'n trouwe vriendinnengroep zijn. Ik ga proberen het kort en bondig te houden: Sanne, niemand voelt zo vertrouwd als jij. Ik mis onze filmavondjes, die moeten we snel weer oppakken! Frieda, ik sta soms versteld hoe lief je bent. Je weet me altijd gerust te stellen en je kan als geen ander eindeloos kletsen (en appen!). Simone, met je nuchtere blik weet je altijd precies de juiste dingen te zeggen. Je bent als echte levensgenieter een voorbeeld (al weet ik niet of ik Ibiza aandurf!). Inge, er zijn maar weinig mensen met zo'n talent voor vriendschap als jij. Ik kijk nu al uit naar het volgende weekend waarin ik weer als amateur-schoonheidsspecialist op je los mag gaan. Tatjana, je bent altijd zo heerlijk jezelf en je tomeloze enthousiasme is aanstekelijk. Wat een geluk om een dokter in ons midden te hebben die we kunnen lastig vallen met close-ups van luieruitslag. Ik kom snel een keer je nieuwe huis bewonderen!

Mijn jaarclub: **Lotte**, **Simone**, **Inge**, **Merel**, **Linda**, **Lizelore**, **Karin V**, en **Karin F**! Ook jullie heb ik veel te weinig gezien de laatste tijd. Nu we verspreid over het hele land wonen en er allerlei grote-mensen-dingen gebeuren is het plannen nogal een uitdaging geworden. Gelukkig voelt het altijd meteen weer als vanouds als we bij elkaar zijn. We kunnen lief en leed met elkaar delen en ik hoop dat we dat nog lang blijven doen. Wie weet zit er nog een keer een lustrumreis in, zodat we weer eens ouderwets kunnen vlammen!

Nicole, dankjewel voor het redigeren van dit dankwoord! Dat hebben we maar mooi gedaan zonder Sanne ;-) Ik hoop wel dat ze je blijft meeslepen naar borrels waar je stiekem geen zin in hebt.

Darifa, ook jij verdiend een plekje in dit dankwoord. Dankzij jou waren de laatste loodjes een stuk lichter. Wat is het fijn om naar werk te gaan in de wetenschap dat de meiden in zulke goede handen zijn. Het is mooi om te zien hoe jij in het leven staat en met hoeveel passie en geduld je voor Liv en Julie zorgt. Ik hoop dat je nog lang bij ons blijft!

Mijn schoonfamilie, **Joke**, **Hanna** 'und' **Lexie**, **Krijn** en **Hans**, dankjulliewel voor alle gezellige logeerpartijen, ontbijtjes, lunches, etentjes, verjaardagen, spelletjes vlooien en memory en de tripjes naar Berlijn en Londen. Het was even wennen dat jullie elke gelegenheid aangrijpen om elkaar cadeautjes te geven, maar eigenlijk is dat een hele mooie traditie! Ik beloof plechtig dat ik vanaf nu geen cadeaus meer zal verkopen op koningsdag.

Dan mijn familie waar ik zo trots op ben. Wat hebben we met z'n allen een heerlijke vakantie gehad in Portugal. Mijn ouders **Menk** en **Cindy**, bedankt dat jullie altijd voor me klaar staan, in goede en slechte tijden. Jullie zijn niet alleen de liefste ouders, maar inmiddels ook de allerliefste opa en oma. Ik hou van jullie! Dit geldt natuurlijk ook voor mijn broers **Joeri** en **Micha** en mijn schoonzusjes **Nina** en **Yara**, het is altijd gezellig

met jullie, ook al is het met alle kids wat chaotischer dan vroeger…! **Robin** en **Zoë**, jullie zijn de mooiste en de liefste! Ik kan niet wachten tot we grote logeerpartijen kunnen gaan houden. Micha, jou moet ik ook bedanken voor het ontwerpen van de omslag, ik ben er superblij mee. Yara, also a big thanks to you for designing the cover, and coming up with the ingenious concept of melting (broccoli?) ice cream.

Opa en **oma**, wat was het schrikken dat opa een beroerte kreeg. Ook al worden jullie natuurlijk ook gewoon ouder, in mijn hoofd zijn jullie altijd de jongste en gezondste opa en oma van de wereld geweest. Het is een spannende tijd en het vraag veel aanpassingsvermogen van jullie beiden, maar ik blijf het vertrouwen hebben dat jullie dit samen (en uiteraard de hulp van de hele familie) aankunnen. Ik ga dit dankwoord met liefde aan jullie voorlezen.

Tenslotte mijn eigen gezin, want dat zijn we nu! **Sjoerd**, zonder jou had ik het niet kunnen doen, aangezien jij op alle vlakken de stabiele tegenhanger bent van mijn neurotische inborst. Je kan nu eindelijk lezen wat ik al die jaren heb uitgespookt, omdat je ondanks je volhardende interesse altijd weinig van me te horen kreeg (sorry!). Het is zo leuk dat we na ruim tien jaar elkaar nog steeds aan het lachen kunnen maken, en ik hoop dat we dat nog vele tientallen jaren gaan doen. Love you! **Liv** en **Julie**, onze kuikens. Jullie hebben het me wel even moeilijk gemaakt om dit proefschrift af te ronden, want dat interesseerde jullie natuurlijk helemaal niks. Het is elke dag weer een feestje om jullie te zien lachen en gekke dansjes met jullie te doen. Wat ben ik trots op jullie! Lieve kleine **Boaz**, ik mis je nog elke dag. Deze is voor jou x

Curriculum Vitae

Sosja Prinsen was born on June 30th 1986 in Utrecht, the Netherlands. After completing her bachelor's degree in Psychology at Utrecht University in 2007, she took a year off to travel through South-East Asia. Upon her return, she continued her education with the academic master Clinical and Health Psychology, again at Utrecht University. After completing this program, she decided that she was still not done with studying and that she wanted to further develop her research skills. Hence, she was admitted to the research master program Social and Health Psychology, and she spend two more years at Utrecht University. After graduating in 2012, she shortly worked as a research assistant at the University of Amsterdam, whilst keeping in touch with her thesis supervisor Prof. Dr. Denise de Ridder as they were in the process of publishing her studies on social normative cues on eating behavior. Along the way they applied for a NWO Research Talent Grant, which she was very lucky to receive in 2013. This allowed her to start her PhD project on self-licensing under supervision of Prof. Dr. Denise de Ridder and Dr. Catharine Evers at the department of Social, Health, and Organizational Psychology. In the first two years, she also worked as a junior teacher in the Psychology bachelor and master programs for one day a week. She also was an active PhD candidate representative in the PhD council of the graduate school of Social and Behavioral Sciences, as well as the PhD Network Utrecht (Prout). Halfway her PhD project, she visited the University of Cologne to work together with Prof. Dr. Wilhelm Hofmann and Dr. Simone Dohle. In 2018, Sosja finished her dissertation on the effects of self-licensing on self-regulation over time.

Publications

Prinsen, S., Dohle, S., Evers, C., De Ridder, D. T. D., & Hofmann, W. (2018). Introducing functional and dysfunctional self-licensing: Associations with indices of (un) successful dietary regulation. *Journal of Personality*.

Prinsen, S., Evers, C., & De Ridder, D. T. D. (2018). Justified indulgence: Self-licensing effects on caloric consumption. *Psychology & Health*.

Prinsen, S., Evers, C., Wijngaards, L., Van Vliet, R. L., & De Ridder, D. T. D. (2018). Does Self-licensing benefit self-regulation over time? An ecological momentary assessment study of food temptations. *Personality and Social Psychology Bulletin, 44*, 914-927.

Adriaanse, M. A., & **Prinsen, S**. (2018). Justification as antecedent and consequence of self-control failure. In D. T. D. De Ridder, M. A. Adriaanse, & K. Fujita (Eds.), *The routledge international handbook of self-control in health and well-being* (pp. 206-218). New York: Routledge.

Adriaanse, M. A.,* **Prinsen, S.**,* De Witt Huberts, J. C., Evers, C. & De Ridder, D. T. D. (2016). 'I ate too much so I must have been sad': Emotions as a confabulated reason for overeating. *Appetite, 103*, 318-323.
* First authors

Prinsen, S., Evers, C. & de Ridder, D.T.D. (2016). Oops I did it again: Examining self-licensing effects in a subsequent self-regulation dilemma. *Applied Psychology: Health and Well-Being, 8*, 104-126.

Prinsen, S., de Ridder, D.T.D. & De Vet, E. (2013). Eating by example: Effects of environmental cues on dietary decisions. *Appetite, 70,* 1-5.

Selection of Presentations

Prinsen, S., Evers, C., Wijngaards, L., Van Vliet, R. L., & De Ridder, D. T. D. (2017, July). Self-licensing and its secondary effects: An ecological momentary assessment study of food temptations. Poster presentation at the 18th general meeting of the European Association of Social Psychology (EASP), Granada, Spain.

Prinsen, S., Evers, C., Wijngaards, L., Van Vliet, R. L., & De Ridder, D. T. D. (2017, February). Self-licensing and its secondary effects: An ecological momentary assessment study of food temptations. Oral presentation at the 6th conference of the Association for Researchers in Psychology and Health (ARPH), Leiden, the Netherlands.

Prinsen, S., Evers, C., Wijngaards, L., Van Vliet, R. L., & De Ridder, D. T. D. (2016, August). Self-licensing and its secondary effects: An ecological momentary assessment study of food temptations. Oral presentation at the 30th conference of the European Health Psychology Society (EHPS), Aberdeen, Scotland.

Prinsen, S., Evers, E., De Ridder, D. T. D. (2015, September). License to indulge: Reflecting on prior (academic) success increases unhealthy snack intake. Oral presentation at the 29th conference of the European Health Psychology Society (EHPS), Limassol, Cyprus.

Prinsen, S., De Witt Huberts, J. C., Adriaanse, M. A., Evers, C. & De Ridder, D. T. D. (2015, July). 'I ate too much so I must have been sad': Emotions as a confabulated reason for overeating. Oral presentation at Helmholtz PhD day, Utrecht, the Netherlands.

Prinsen, S., Evers, E., De Ridder, D. T. D. (2015, February). Downstream consequences of self-licensing in a subsequent self-regulation dilemma. Oral presentation at the 4th conference of the Association for Researchers in Psychology and Health (ARPH), Ghent, Belgium.

Prinsen, S., De Witt Huberts, J. C., Adriaanse, M. A., Evers, C. & De Ridder, D. T. D. (2014, August). 'I ate too much so I must have been sad': Emotions as a confabulated reason for overeating. Oral presentation at the 28th conference of the European Health Psychology Society (EHPS), Innsbruck, Austria.

Prinsen, S., De Witt Huberts, J. C., Adriaanse, M. A., Evers, C. & De Ridder, D. T. D. (2014, July). 'I ate too much so I must have been sad': Emotions as a confabulated reason for overeating. Poster presentation at the 17th general meeting of the European Association of Social Psychology (EASP), Amsterdam, the Netherlands.

Prinsen, S., de Ridder, D.T.D. & De Vet, E. (2013, February). Eating by example: Effects of social normative cues on dietary decisions. Oral presentation at the 2nd conference of the Association for Researchers in Psychology and Health (ARPH), Enschede, the Netherlands.

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